THE PREVENTION OF BLINDNESS

REPORT PUBLISHED BY THE LEAGUE OF RED CROSS SOCIETIES

MINUTES OF THE CONSTITUTIVE ASSEMBLY OF THE INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS

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REPORT

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TABLE OF CONTENTS

FOREWORD 7

INTRODUCTION TO THE SECOND EDITION 9

CHAPTER I.

The Red Cross and the Prevention of Blindness 11

CHAPTER II.

Definition of Blindness 13

CHAPTER III.

Amount of Blindness in the World and its geographic distribution . 16

CHAPTER IV.

Causes of Blindness 18

Trachoma 19

Venereal Disease 20

Ophthalmia neonatorum 22

Smallpox 24

Congenital defects 24

Glaucoma 25

Other Diseases 25

CHAPTER V.

Accidents 26

CHAPTER VI.

Seriously defective vision 28

Myopia 29

Hyperopia 30

Astigmatism 30

Presbyopia 30

CHAPTER VII.

Direct Prevention of Blindness activities 31

Africa 31

Argentine 32

Armenia 32
Australia 32
Austria 33
Bulgaria 33
Belgium 33
Canada 34
China 35
Cyprus 36
Czechoslovakia 37
Denmark 37
Dutch East Indies 38
Egypt 38
Estonia 39
Fiji 39
Finland 39
France 40
Germany 41
Great Britain 42
Greece 44
Holland 44
Hungary 45
India 45
Ireland 46
Italy 46
Japan 47
Latvia 48
Lithuania 48
Luxemburg 49
Malta 49
Mexico 49
New Zealand 50
Norway 50
Palestine 51
Philippine Islands 51
Poland 52
Roumania 52

Scotland 53
Spain. 53
Sweden. 54
Switzerland 54
Syria. 55
Turkey 55
U. S. S. R.. 55
United States 56
Yugoslavia 56

CHAPTER VIII.

International Agencies interested in the Prevention of Blindness. . 56
League of Nations 56
International Labour Office 57
League of Red Cross Societies 58
Union internationale contre le péril vénérien 58
Association internationale pour la protection de l'enfance. . . 58
International Save the Children Fund. 58
International Education Bureau. 58
International Migration Service. 61

CHAPTER IX.

The need and possible functions of an international Organization for the Prevention of Blindness. 59
Medical and allied professions 60
Engineering services. 60
Industrial Hygienists 60
School systems 61
Public Health Agencies 61
Agencies administering Compensation Acts. 61
Agencies engaged in work for the blind. 62
Social Hygiene Associations. 62
Child Welfare Associations. 62
Social Welfare Agencies. 62

ANNEXE I.

Census of Blind Population throughout the world. 64

ANNEXE II.

A typical case of national action for the Prevention of Blindness (National Society for the Prevention of Blindness) 68

The Board of Directors 69

The Executive Committee 69

Finances. 69

The staff 70

Brief history of organization 70

Co-operative relationships 71

Services rendered by the National Society for the Prevention of Blindness 73

Eye infections of newborn babies 74

Examination of the eyes of pre-school children. 80

Saving the eyesight of children of school age. 81

Trachoma 88

Eye hazards in industry 88

Field service. 88

Publications 89

Account of the Meeting organized by the League of Red Cross Societies and the Provisional Committee for the Prevention of Blindness. . . 93

Statutes of the International Association for the Prevention of Blindness. 102

List of Delegates of International and National Organizations 108

List of Delegates of National Red Cross Societies. 110

List of Members. 111

FOREWORD

A preliminary draft of this report, drawn up as the result of an exchange of views and collaboration between the American National Society for the Prevention of Blindness and the League of Red Cross Societies, was considered by the following experts at a meeting held in Paris on March 16, 1928: M. Renaux and M. de la Canorgue of the Valentin Haüy Association, Prof. de Lapersonne of the Paris University, Dr. Cavaillon of the International Union for the Prevention of Venereal Disease, Prof. Santoliquido, formerly of the International Public Health Office, Dr. Taliaferro Clark, European representative of the United States Public Health Service, Mr. Lewis H. Carris for the United States National Society for the Prevention of Blindness and Dr. F. Humbert for the League of Red Cross Societies. Dr. Morax and Dr. Petit, President and Secretary respectively of the League against Trachoma, though prevented from attending, notified the meeting of their interest and sympathy in the plans to be discussed.

Approval was expressed of the preliminary report, with the recommendation, however, that it be elaborated to contain more definite information in regard to existing conditions and the present participation for national and international organizations. It is in an endeavour to comply with this recommendation that the present pamphlet is published; not with a claim to present the picture as a whole, for such is impossible in view of the limited time and financial resources available, but as an indication of the enormity of the problem and as a basis for consideration on the part of those interested in the improvement of health and social conditions.

INTRODUCTION TO THE SECOND EDITION

A few additions and corrections have been made in the text of the first edition, since this report was submitted to the General Assembly summoned at Scheveningen on September 14, 1929 by the League of Red Cross Societies and the Provisional Committee for the Prevention of Blindness. This meeting, an account of which will be found at the end of this volume, resulted in the founding of the International Association for the Prevention of Blindness.

As soon as it was formed, the International Association approved this report and decided that it should be circulated as widely as possible; a resolution was also adopted by the Association expressing its gratitude to the League of Red Cross Societies and to the American National Society for the Prevention of Blindness.

The authors and the Executive Committee of the International Association take this opportunity of expressing their thanks to all those who have so courteously answered their request for information. Special mention must be made of the Health Organization of the League of Nations whose work has frequently been referred to in the first part of this report. The latest and remarkable enquiry of the League of Nations dealt with the welfare of the blind in various countries, but the authors themselves declare that the causes and prevention of blindness did not come within the scope of their work. However the data they have collected as to the enormous number of blind persons and the difficulties met with by Governments in dealing with their precarious situation are a new token that the work undertaken by the International Association for the Prevention of Blindness corresponds to a real need. There can be no duplication of work with existing organizations for the welfare of the blind since the Association has an altogether different programme: prevention. The Association intends in the first instance to unite the efforts of all who are willing to help in preventing accidents and disease from making new victims, in bringing about a decrease in the number of the blind, in two words, in protecting and preserving eyesight.

Paris, December 1929.

CHAPTER I

THE RED CROSS AND THE PREVENTION OF BLINDNESS

The problem of blindness was brought to the notice of the Second Pan-American Conference of the Red Cross, held in the United States, in 1926, at Washington, D. C. The Conference recommended that the Red Cross Societies co-operate in the *prevention of blindness* as well as in the creation of workshops for the blind, *with a view to arousing public interest in the medico-social problem of blindness.* Even without this special recommendation the vast and grave problem of the prevention of blindness, to which we here call attention, could not have remained foreign to the Red Cross when Governments throughout the world encourage it « to improve health, prevent disease and mitigate suffering. » Several national Red Cross Societies, in addition to their work for the blind, have taken part in establishing social and medico-social institutions which directly or indirectly are active in the preventive field — notably dispensaries for the prevention of trachoma and for the prevention of venereal disease. The Junior Red Cross cannot remain indifferent to the situation of children blind from birth ; nor to the question of educating children with defective sight who require differential treatment in schools.

On more than one occasion the League of Red Cross Societies has been requested to call international attention to this problem, notwithstanding the urgency of other matters which alone have been sufficient to absorb its full activity. Attempts at international co-ordination, however, did not until recently appear to have the necessary backing, and a considerable amount of preliminary work was needed before definite proposals could be made.

Encouraged by the fact that this problem had been placed on the agenda of the Child Welfare Committee of the League of Nations, which was called to examine certain social aspects relating to blind children, the Secretariat of the League of Red Cross Societies undertook to study and define the sphere of action of various charitable organizations for the blind throughout the world. In its opinion the organization with the preventive aspect of blindness most thoroughly developed and brought nearest to practical realization, was the United States National Society for the Prevention of Blindness. Attention of the Child Welfare Committee was called to one of the characteristic features of the work pursued in the United States of America, namely, the creation of over 300 sight-saving classes, a specialized form of education for children with seriously defective vision. Similar classes have been established in England and elsewhere, but in the great majority of countries they are non-existent or imperfectly developed.

A detailed analysis of the activities of the United States Society for the Prevention of Blindness is attached hereto as Appendix II in order to show its extraordinary extension. Especially noteworthy is the conviction of this Society, gathered from experience, that the intimate co-ordination of the public health, medical and nursing professions, ophthalmologists, venereal disease specialists, industrial hygienists, illuminating engineers, teachers and sociologists, and of all groups dealing with incurable blindness, is a necessary step in prevention.

One must take into account the probability that activities in the United States have been favoured by unusually propitious economic conditions, and this does not in any way depreciate the value of preventive measures adopted outside America. However, the greater development in that country is perhaps in large measure due to a special mental attitude towards the logic of prophylaxis, and represents the unmistakable evolution of the clinical spirit towards the medico-social spirit.

The necessity for continued study of the international field and further analysis of methods followed before formulating an international programme became increasingly evident, and the League of Red Cross Societies expressed willingness to undertake such an analysis, this being in accord with its aim: « To place at the disposal of all the benefit of knowledge already acquired, of new discoveries and their application. » A study of this nature, however, could not be based on documents alone — necessarily lacking in the essential and living atmosphere of proof by actual facts, and the assistance of the United States National Society for the Prevention of Blindness was asked in securing additional information. In response to an official request from the Secretariat, the National Society delegated its Managing Director, Mr. Lewis H. Carris, to act in Europe (February, 1928), and Mr. Carris' service of several months was followed by two months' service on the part of the Society's Secretary, Miss Eleanor P. Brown. This opportunity is taken of expressing warmest thanks to the National Society for the Prevention of Blindness for such effective assistance.

The League's request was, in fact, antedated by the United States Society's interest in this international aspect of the question when in 1924 at the request of the Section on Ophthalmology of the American Medical Association it began to study the possibilities of world co-operation. At that time it appealed to the Rockefeller Foundation; it suggested that a special Conference on the prevention of blindness be called in 1926; it placed itself in touch with the Health Section of the League of Nations in 1925 and with the League for the Prevention of Trachoma — to mention only the most important steps taken. Therefore, it was with a common realization of the problem, and of the vital need for concerted action that the study was commenced.

Let us not overlook the many wonderful institutions for the blind — urgently necessary and of tremendous influence in the world's social progress. We can but admire their remarkable development since the impetus given by Valentin Haüy scarcely 150 years ago. These organizations had necessarily to follow the natural evolution of public health, which in all spheres must first undertake work of the most urgent nature, and the significance of their contribution in shelter, care, education, training and means of existence for those handicapped by loss of sight cannot be over-emphasized. As knowledge of the causes of blindness permits, however, realization of the needs of the blind must embrace efforts to eliminate in so far as possible the factors responsible for their condition, and energetic preventive action must follow.

This preventive work, considered by many a question of public health and pedagogy falling within the competence of the State, has but in a few instances been treated as one single problem. National and international organizations deal with industrial hygiene as it affects the eyes, others with mental hygiene, social hygiene, general hygiene or relief work, while others confine their attention to children. Though the work undertaken by Governmental and scientific organizations naturally must be regarded as of primary importance, account must be taken also of private agencies, which in prevention of blindness, as in other matters, have proven indispensable pioneers in the fight against social disease. The examples of the International Unions for the Prevention of Tuberculosis, Venereal Disease, and other similar bodies, show that the Governments themselves frequently have a tendency to appoint as their representatives on these Unions members of voluntary associations in preference to direct delegates.

CHAPTER II

DEFINITION OF BLINDNESS

Pierre Villey says in *l'Aveugle dans le monde des voyants* — "what ambiguity there is in this term 'blindness'," and examination of world literature on the subject shows no generally accepted definition. Again, to quote from M. Villey, "Sometimes census makers request that a person be considered as blind who cannot see enough to read and write ; again, that it be one who cannot follow occupations demanding sight. How can those who are at the borderline of blindness help being embarrassed in reply to such vague definitions when their census is being taken? There are more precise definitions but their application is very difficult. In general, it is considered expedient to call a person blind who has only one-tenth of visual acuity. But what about those of us who do not know what one-tenth of vision means, or how to measure sight? Then again, it is not sufficient to consider only the degree of vision ; the extent of the visual field is an element of highest importance, and there are other factors to consider as well. Is it necessary in censuses that each doubtful case be considered by a specialist with his complicated equipment in order to control these various standards?''

It is of interest to note the varying definitions of blindness used by a number of countries:

Australia. — Inability to count fingers at a distance of 2-3 metres under any circumstances.

Canada. — Visual acuity not exceeding $^{1}/_{10}$ of normal. This definition is used equally in selecting children to whom must be accorded special educational facilities, though in the latter case with reservations.

Denmark. — Visual acuity of less than $^{6}/_{60}$, which entitles one to assistance; or vision reducing work capacity to less than $^{1}/_{3}$ of normal, which entitles one to pension. In regard to children, sight so weak as to prevent the following of ordinary instruction.

Germany. — Total blindness, and visual acuity too weak to permit one, even with proper glasses, to guide himself in strange surroundings or to count fingers at the distance of 1 metre against an obscure background. Those blind in one eye only are not counted as blind.

Greece. — Visual acuity too low to allow of finding one's way or of perceiving the shape of objects.

Holland. — Visual acuity in better eye after correction $^{1}/_{2/60}$ or less. For children under 14 years, visual acuity of $^{5}/_{60}$ or less. Here other factors are also taken into account, such as limited field of vision, etc.

Hungary. — Visual acuity so low as to prevent the ability to count fingers at 1 metre.

Ireland. — Visual acuity so low as to prevent the carrying on of work for which sight is essential. The law of 1920 also states that visual acuity after correction must be less than $^{1}/_{20}$ of normal in order to entitle a person to benefit from blind pension.

Italy. — Such alteration in sight as to prevent the counting of fingers at a short distance. This definition stands only for adults.

Japan. — Blindness classified in three degrees: entire loss of optic sense, slight optic sense, and inability to recognize fingers at 1 metre and over.

Latvia. — Visual acuity insufficient to allow person to find his way.

New Zealand. — Permanent and irremediable visual defect in which the vision in each eye is not greater than $^1/_{60}$. This definition does not apply to children who are accepted at the Institute for the Blind when insufficient sight prevents the usual course of education in a sighted school.

Poland. — Visual acuity too weak to permit the counting of fingers at a metre's distance, or of finding one's way.

Sweden. — Visual acuity too weak to permit the counting of fingers at 1 metre. For children, visual acuity too weak to permit the partaking with advantage of ordinary school instruction.

United States. — Inability to see well enough to read even with the aid of glasses; or for illiterates, inability to distinguish forms and objects with sufficient distinctness.

So far as has come to the notice of this study, the best working definition for blindness is found in the Report of the Advisory Committee on the Welfare of the Blind, published by the Ministry of Health of Great Britain (1) which appears as follows:

> "There are two statutory definitions of blindness in this country.
>
> "(1) Part V of the Education Act, 1921, re-enacts the Elementary Education (Blind and Deaf Children) Act, 1893, and provides that a blind child shall receive instruction suitable to such a child. In Section 69 of this Act blind is defined as meaning 'too blind to be able to read the ordinary school books used by children.'
>
> "(2) Section 1 of the Blind Persons' Act, 1920, defines a blind person as one who is so blind as to be unable to perform any work for which eyesight is essential."

Regulations of the Ministry of Health, under which grants are given for the Welfare of the Blind, define as blind one who is "too blind to perform work for which eyesight is essential" — a definition which for all practical purposes is identical with that given in the Blind Persons' Act. It will be seen that these two last definitions include many persons other than those totally blind, but that the educational definition, which is largely preventive in its purpose, is still more inclusive. Difficulties arise from this difference because a child rightly educated in a school for the blind may not have sufficient loss of vision to become eligible for the grants and benefits available to those blind within the definition contained in the Blind Persons' Act and the Ministry's Regulations. The Ministry of Health in Circulars 681 and 780 explains the principles adopted in deciding whether a person is too blind to perform work for which eyesight is essential. Briefly, only visual factors can be taken into account and other bodily or mental infirmities should be disregarded. Where acuity of vision with refractive error corrected is below $^1/_{20}$ of normal ($^3/_{60}$ Snellen), the person may usually be regarded as blind.

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(1) *Handbook on the Welfare of the Blind in England and Wales.* His Majesty's Stationery Office, London 1927.

Where acuity is better than $^6/_{60}$ Snellen, the presumption is that the person is not blind unless counter-balancing visual conditions are present such as great contraction of the field of vision, marked nystagmus, etc. The deciding point is not whether a person can pursue his ordinary occupation, or a particular trade, but whether he has sufficient vision to perform any work for which eyesight is essential.

"The problem of the partially sighted, such as high myopes, is a difficult one, but it cannot be dealt with under the Blind Persons' Act, though provision can be, and is, made for the education and, in some cases, for the vocational training of myopic children and young persons under the Education Act." (1)

In the attempt to fight blindness, a practical definition for use by those engaged in work for the blind is necessary, as distinct from a purely ophthalmological definition with its fine measurements of visual acuity. Very certainly the formulation of a standard definition would enable all forces dealing with this catastrophe to approach its solution in a more systematic and comprehensive way, and would insure more easily comparable statistics.

CHAPTER III

AMOUNT OF BLINDNESS IN THE WORLD AND ITS GEOGRAPHIC DISTRIBUTION

In considering blindness as a world-wide problem, some statement should be made as to its extent and distribution, but from the beginning certain limitations must be recognized. Such figures as are available must, except in a few instances, be taken from the last available census tables, in which they are undoubtedly much lower than the actual number of blind living in any country. Here, too, the lack of a common definition of blindness prevents the accumulated data from being considered as accurate. Yet with all their statistical limitations, figures at hand present a startling total of blindness.

The United States census report of 1910 is reproduced in this bulletin as Appendix I, since in it is contained the most complete tabulation of world-wide blindness available at the present time. The estimate of three million given therein is undoubtedly much smaller than the total blind population of the world, as can be shown by examining several instances where corrections to official figures have been made.

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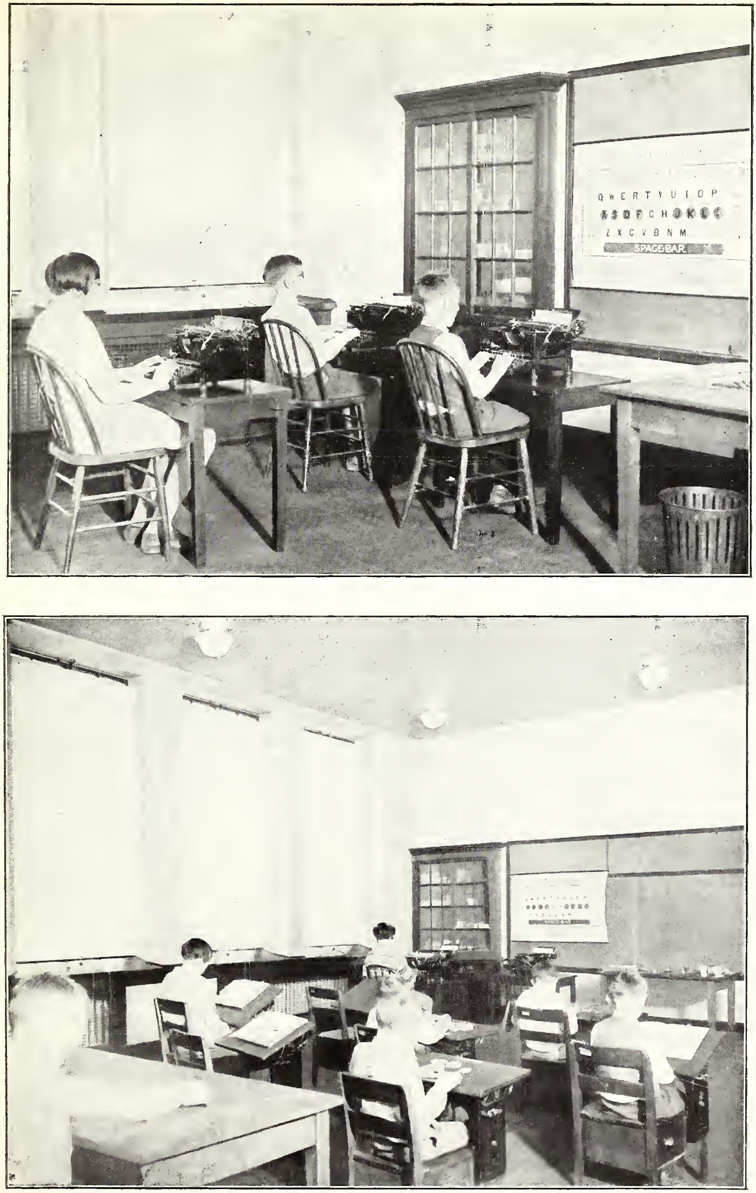
(1) *Handbook on the Welfare of the Blind in England and Wales.*


Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M
SPACE BAR

Sight-saving classes

The washing of windows and skylights in an industrial plant as a means of reducing accidents and eye strain

Unloading ore and wearing goggles for protection against dust and glare of the sun

The roller towel has been responsible for numerous epidemics of trachoma or other contagious eye diseases in industrial plants

For instance, the United States census for 1920 gives the total blind population as 52,617 and reports 4,205 of these persons as residing in the State of New York. Later, the Federal census turned in a revised list of 2,000 blind in New York State, whereas the State Commission for the Blind, an official agency, reported a total number of 8,208 as of July 1, 1928 — a figure obtained after careful verification of the numbers registered. Allowing for all possible discrepancies, therefore, such as duplication of names, erroneous listing of one-eyed persons as blind, etc., and granting the same proportions in other States, it is concluded that the total blind population of the United States more nearly approximates 105,000 than 52,617. In the State of Missouri (U. S. A.) a law provides pensions for the blind and in connexion with the granting of these pensions, from June, 1921, to June, 1923, 5,927 applicants were examined by physicians. Dr. H. D. Lamb (1) states that the amount of blindness in counties varied from one among 213 to one among 1831 residents; the ratio in St. Louis City was one to 1211 and in Kansas City one to 1262; the average for the State was one to 574.

According to the United States Census for 1920, the blind population of Missouri was 2,226 — considerably less than half of the cases actually known to the Missouri Commission for the Blind in 1923.

The statements made above are not to be regarded as critical of any census or methods of enumeration ; their limitations are recognized as unavoidable. They necessitate, however, an approximation of the figures relating to blindness.

An estimate of the number of blind in China, a country not included in the tables of Appendix A, is made by Dr. H. J. Howard, an oculist with many years' experience in that country, who says:

"There are probably not less than one-half million of people in China to-day who are blind in both eyes; probably five million more who are blind in one eye, and at least fifteen million who are nearly blind, many of whom will be totally blind within a few years." (2)

Similar statements might be made in regard to a number of other oriental countries and additional facts concerning estimates given in census reports (3) could be provided, but enough has been said here to show that a truer estimate of the total number of world blind would probably double that given in Appendix A; even this number of approximately 6,000,000 blind takes no account of that much larger group with vision so seriously defective as to be handicapped vocationally and threatened with ultimate loss of sight.

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(1) *Journal of the Missouri State Medical Association*. U. S. A. May 1926.

(2) *Health*, March, 1925. Published in China.

(3) Estimated - no official census.

L'Office permanent de l'Institut international de statistique published in 1927 the following statistics on blindness in nine countries:

Germany (exclusive of Wurtemburg, Lubeck and territory of Sarre) October 1925	34,703
Prussia — October 1925	21,573
Bavaria — October 1925	4,300
Saxony — October 1925	3,308
Greece — January 1921	5,278
Hungary — December 1920	5,783
Poland — September 1921	16,635
Chili — December 1920	2,910
Canada — June 1921	4,396

In further considering the distribution of blindness throughout the world, let us turn again to M. Pierre Villey and summarize briefly some of the outstanding facts taken from *l'Aveugle dans le monde des voyants* :

1. Blindness is least prevalent in the Occidental countries and increases as we approach and reach the Orient.

2. Great variations may exist in different parts of the same country, e. g., in France, 360 per million population in Vienne and Vendée to 1,160 per million in Tarn-et-Garonne.

3. Many more males than females are blind in all age groups.

4. In a given country with about the same climatic conditions as France about $^1/_{10}$ of the number of blind persons are less than 20 years of age; $^4/_{10}$ are between 20 to 59 years of age; $^5/_{10}$ are 60 years or over.

5. The problems of education and rehabilitation apply approximately to only 50 per cent. of the blind.

6. The proportion of blind increases constantly with age, each year bringing its contingent of newly stricken.

Chapter IV

CAUSES OF BLINDNESS

No attempt is made in this report to catalogue all causes of blindness nor to describe them with scientific accuracy. Those wishing a more detailed analysis of causes as made for a single country are referred to the Final Report of the Departmental Committee of the Great Britain Ministry of Health on the Causes and Prevention of Blindness (1), the most exhaustive study of the subject made by any country, so far as the writers of this report have been able to discover, and one which gives a detailed picture of the situation in England, Scotland and Wales.

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(1) His Majesty's Stationery Office, London, 1922. Price 6s.

In this present volume only the major causes — trachoma, syphilis, gonorrhoea, ophthalmia neonatorum, smallpox, glaucoma, congenital defects and accidents — are named, and descriptions are given in terms for the layman.

TRACHOMA

Trachoma has been and still is one of the major causes of blindness among the world's population and is found to some extent in practically every part of the globe, its ravages being especially severe in oriental countries. Geographically it is most prevalent in Egypt and along the borders of the Mediterranean Sea (to a lesser degree on most of the European coast) ; in Palestine, China, the Balkan States, India, the hot sections of Brazil, and in North America among the dwellers in the Appalachian and Ozark Mountains and among American Indians.

Dr. MacCallan (1) has estimated that ninety-five per cent of the native population in Egypt are sufferers. In Russia in 1914, J. Koloubovsky estimated that of 60,000 totally blind 21.4 per cent. were so through trachoma. *La Revue du Trachome*, published by *La Ligue contre le Trachome*, in every issue gives sad pictures of conditions in French colonial possessions. Dr. Howard (2) states as his belief that trachoma in China causes greater economic loss than floods or famine, and that 30 per cent. of the Chinese are afflicted.

In "The Problem of Trachoma's Ravages Demands Attention," (3) Dr. Paul D. Mossman says, "The early symptoms of trachoma are itching, burning or a feeling as of a foreign body in the eye. The eyes are sensitive to light and tears flow readily. Later the vision is affected and may be entirely destroyed by the inflammation which causes ulcers of the cornea followed by corneal opacity. While the disease begins in the eyelid, the cornea is usually involved sooner or later. The formation of scar tissue in the conjunctiva of the lid causes the edge of the lid to turn in (entropion) and the lashes to scratch the cornea. Opacity of the cornea is caused both by this mechanical irritation and by the extension of the inflammatory process from the lid to the cornea."

A considerable period of time elapses between the earliest onset of trachoma and the time when it can be diagnosed with certainty.

As the trachomatous eye is peculiarly susceptible to most, if not all recognized types of eye infections, trachoma is often found in combination with other eye diseases.

Trachoma is made reportable by many countries, notably the United States, which has also for many years refused admission to immigrants showing symptoms of the disease, and preventive measures have practically always been on the exclusion and treatment basis.

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(1) "Trachoma and its Complications in Egypt," A. H. Mac Callan, M. D.

(2) *China Medical Journal.* April, 1924.

(3) *Nation's Health*, United States, July, 1926.

The cause, however, has not yet been definitely found and some recent lines of research raise the question of diet as a possible causative or predisposing factor. Etiologic investigations in three or four instances have been promising; the recent studies of Dr. Noguchi in the Rockefeller Laboratories, unhappily curtailed by Dr. Noguchi's untimely death, may lead to results. There is great need for further research which should include:

1. Continued search for the specific germ and a scientific demonstration of its transmissibility.
2. Complete epidemiological studies.
3. The study of diet in its relation to the disease.

Consideration of economic and general health conditions in any given locality where trachoma is prevalent indicates that poverty, crowding and unsanitary living conditions are important factors in its contraction and spread. Even in countries with well-organized and extensive ophthalmic campaigns for the relief and cure of sufferers, it cannot be hoped that trachoma will be materially reduced until general conditions are improved and education in hygiene has developed sanitary living. This disease, perhaps the greatest single cause of vision impairment and blindness, is a scourge which must constitute a health and economic challenge to all national and international health and public welfare agencies.

VENEREAL DISEASE

Two types of venereal disease, both of which are all too common throughout the world, are responsible for much impairment of vision and total blindness. Until recent years there was great reluctance to speak publicly and truthfully of the very close relation of venereal disease to ocular disturbance, but the facts are becoming more and more frankly recognized and discussed.

1. *Syphilis.* Conservative estimates give syphilis as the cause of at least 15 per cent. of total blindness in several of the Occidental countries, and for every case of total blindness traceable to syphilis several times as many cases of serious vision impairment are due to this cause. The relative importance of syphilis among the various causes of blindness may be less in Oriental countries where trachoma rages, and where famine and poor living conditions have resulted in a lowered resistance to other forms of disease which attack the eyes.

It does not come within the province of this report to discuss in detail all of the eye involvements which may be due directly or indirectly to this cause, but both ophthalmologists and syphilologists agree that interstitial keratitis, iritis, choroiditis, retinitis, optic atrophy and a considerable number of other serious eye conditions are very frequently, although not always, caused by syphilis. Dr. Stokes (1) estimates that in the course of the disease 25 to 35 per cent. of syphilitic persons will show distinct ocular lesions or associated nervous mechanism disturbances. No part of the structure of the eye is exempt.

Patients fall into two classes: those who have acquired syphilis and those who have inherited it.

With the first group, those who have acquired syphilis, ocular indications often appear long after the initial symptoms of the disease have been manifested. Many an individual, treated for a while and seeing no signs of skin disfigurement or external evidence prompting further care, and not much out of health, fails to follow medical advice. The eye tissues, like the tissues of the spinal cord and central nervous system, catch the brunt of the infection and suffer most from the toxic accumulations, which may not become easily recognized before 20 even 30 years after onset. Early recognition by the individual and his appreciation of the importance of immediate and continued treatment, perhaps extending over several years, will tend to reduce loss of sight as well as the many other physical disasters following in the wake of this disease.

Inherited syphilis arouses greater sympathy. Its ravages are so terrible and can so largely be avoided by known preventive measures that society is challenged to fight for future generations of children in order that they may not have among them an appreciable number of sufferers. As in acquired syphilis, the large number of eye involvements justifies emphasis upon inherited syphilis as a preventable cause of blindness. The disease is apt to be sluggish and stubbornly recurring in character. Vision may be a little more impaired each year through childhood and youth, with partial or complete invalidism reaching its height during the most useful age period and lasting until the end of life.

This by-product of social disease of the preceding generation may be considered more hopefully than formerly, both as regards prevention and cure. Syphilographers, obstetricians and pediatricians generally agree that properly administered treatment of the expectant mother, commenced as soon as possible after the beginning of pregnancy and, in any case, not later than by the fourth month, will almost certainly free the child born of such a mother from infection. If it is possible to avoid the tragedies of inheritance by such measures, united efforts should be made to have that fact brought to the attention of every syphilitic woman. A routine blood test for each expectant mother and the requirement of health certificates before marriage are other preventive measures sometimes advocated.

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(1) Volume IV, American Health Congress Series.

The early treatment and continued care of innocent inheritors of syphilis must be undertaken, not only to relieve symptoms of the disease and prevent its spread, but also to prevent in so far as possible later and more serious complications.

Every effort in the interest of strong social hygiene campaigns, every effort towards the establishment of more complete social hygiene procedures, adequate support of social hygiene clinics with well-equipped field workers, will show a reflex in minimizing hereditary syphilis that attacks the tissues of the eye.

2. *Gonorrhoea.* The germs of this disease, gonococci, are always an eye menace, as the eye provides a fertile soil for their propagation and growth. Little time elapses between eye infection from this source and very serious symptoms which, if neglected, lead to entire or partial loss of sight. Generally it is the innocent who suffers.

Gonorrhoea is the most frequent cause of ophthalmia neonatorum, oı conjunctivitis of the new born; but since a number of other germs are also answerable for this disease, "ophthalmia neonatorum" will be treated under an independent heading. As in the case of syphilis, those forces interested in the prevention of blindness must unite with workers in social hygiene, for the decline and elimination of gonorrhoea will entail a marked decline of blindness and defective sight.

OPHTHALMIA NEONATORUM

(Babies' Sore Eyes)

As already mentioned, several reasons prompt a separate consideration of this grave cause of blindness, too often considered as necessarily of venereal origin.

Study of the question shows that approximately 40 per cent. of eye infections at birth are due to other causes than gonococci. A wide-spread knowledge of this fact will eliminate the constant suspicion of parental venereal disease, and will make the routine use of a prophylactic at birth, so widely recommended by ophthalmologists and obstetricians, more universally acceptable.

Three measures must be carried out, in order to eliminate this cause of blindness:

1. Treatment of the expectant mother as long as possible before birth occurs.
2. Prophylaxis of eyes at birth. The prophylactic most frequently used is a one per cent. solution of silver nitrate.
3. Prompt diagnosis, notification and treatment of ophthalmia neonatorum cases.

The British report of 1922 contains a full analysis of the situation in Great Britain and gives a picture of countries where public health work has developed to a similar extent. In many other parts of the world conditions are without doubt much worse. Even with the diminution of blindness from this cause in England since the general adoption of the Credé method of prophylaxis, the Commission felt it necessary to make certain specific recommendations. In view of the consequent improvement in procedure and the applicability of these regulations to any nation, with such modification of language as may be needed by the health organization of the particular country, the recommendations are given in this report as follows:

> " We recommend that any infant whose vision is impaired, whether from ophthalmia neonatorum or any other cause, should be brought under the notice of the Local Education Authority at the earliest possible age, and before the normal school age, in order that special education and training may be commenced early.
>
> " We recommend that arrangements should be made for pupil midwives to visit ophthalmic hospitals or the ophthalmic departments of general hospitals for the purpose of gaining direct experience of ophthalmia neonatorum.
>
> " We recommend that in cases of suggested ophthalmia neonatorum, facilities for consultation with an ophthalmic surgeon and for bacteriological investigation should be provided wherever practicable.
>
> " We recommend that the Ministry of Health should take steps to ensure that adequate nursing provision is always available for cases of ophthalmia neonatorum which are not admitted to hospital.
>
> " We recommend that the General Medical Council again be urged to insist that every student presenting himself for a qualifying examination in medicine shall be examined in ophthalmology.
>
> " We recommend that in every area, whether urban or rural, the Ministry of Health should take measures to secure the provision of suitable hospital accommodation for babies suffering from ophthalmia neonatorum and for their mothers."

Ophthalmia neonatorum was among the first of the preventable causes of blindness to receive general attention and there has been sufficient experience to determine to some extent the success of efforts made. Mr. Bishop Harman reported to the British Commission that of 737 children admitted to schools for the blind between 1907 and 1913 inclusive, 134 (18.03 per cent.) were blind from ophthalmia neonatorum and that of 755 children admitted between 1914 and 1920 inclusive, only 89 (11.91 per cent.) were blind from this cause — a reduction of over one-third in the second seven-year period. The United States National Society for the Prevention of Blindness reports a decrease in new admissions to schools for the blind due to ophthalmia neonatorum from 23 per cent. for the period 1908-12 to 11.9 per cent. for the period 1923-27.

All blindness from "babies' sore eyes" can be prevented and it should be considered criminal neglect to omit the proper procedure.

SMALLPOX

Formerly smallpox was the greatest single cause of blindness. Reports for the first half of the past century show that of applicants to indigent homes for the blind from one-half to two-thirds owed their loss of sight to this disease. Statistical tables of later years indicate that this cause of blindness has practically disappeared in Western Europe. For instance, in the British Report of 1922, Mr. Bishop Harman gives four cases of blindness from smallpox among 1955 blind children; Dr. Lamb, in his study of blindness among 6,000 adults in Missouri (1), does not include smallpox among the list of causes.

That such is not a world-wide situation, however, is indicated by the report for the year 1926 of the Blind Relief Association of India (2) which states: "Smallpox, as is well-known, plays havoc with the eyes of many children. A simple treatment will save the eye in these cases. Field workers are taught to apply this. The village officers are requested to send immediate reports of cases of smallpox and the sub-assistant surgeon of the Saluta or the Touring Medical Officer, if there is one, is expected to visit the village as soon as possible. But with smallpox breaking out sporadically in widely scattered villages, these medical officers, though they can do much, cannot do everything, and there the Association field-workers can render help, for they are on the spot. They have continually to visit cases of smallpox in their villages and keep the eyes clean and apply the simple treatment mentioned. In this way many eyes can be saved, and were it not for this system, many children in the villages would be left to go blind."

It is probable that as Ministries of Health can put into effect thorough vaccination programmes for the elimination of smallpox, and as the public can be educated to a realization of their value, this cause of blindness will practically disappear.

CONGENITAL DEFECTS

These always rank high in any tabulation of causes of blindness among children. Of 2891 blind listed in the British report, 670 or 22.8 per cent. are noted as being blind from congenital defects, classified under a number of heads such as cataract, dislocation of the lens, complete or partial absence of the iris, albinism, etc. Since blindness from congenital defects comes largely during early life, this cause does not loom so high in the tabulation of blindness of all ages; for example, Mr. Bishop Harman, in a careful analysis of 601 adult cases, assigns congenital defects to 34 or 5.66 per cent.

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(1) *Journal of the Missouri State Medical Association*, U. S. A., May 1926

(2) Published by the Blind Relief Association, Kalbadevi Road, Bombay

With respect to many congenital defects it is possible to show inheritance as a factor and such blindness can be prevented through the realization of a eugenic programme eliminating the inheritance of generally accepted undesirable physical or mental characteristics. In the majority of cases, however, medical knowledge does not yet provide suggestions for prevention.

Present-day advance in obstetrical procedure will probably bring about a reduction in the amount of so-called congenital blindness caused by injury at birth.

In the case of children born with defects of eye structure, two desirable preventive measures are: First, the preservation of any possible vision, for even a very small amount may enable an individual to live and work with the sighted; Second, the provision of facilities which will enable children with defective sight to receive an education best suited to their needs.

GLAUCOMA

This disease takes a high place among the causes of blindness in middle age and later life. Dr. Jackson estimates (1) that glaucoma causes twelve per cent. of all cases of hopeless blindness. The high tension of the liquid contents of the eye against the inner coats (retina and blood vessels) of its enclosing spherical bag of sclera and cornea finally gives rise to loss of vision. In the popular article referred to, Dr. Jackson says: "Glaucoma cannot be prevented with certainty, but in most cases its worst effects — blindness and intense continual pain — can be avoided. To do this, one must know about the danger that threatens. It is the danger of middle and late life... The disease may require years to run its course to complete blindness. More often it is a matter of a few months or a few weeks."

While the cause of glaucoma is not known, prompt recognition and continued treatment by an oculist will in most cases result in preserved eyesight and avoidance of much suffering. The fact that early cases may be relieved by frequent change of glasses has led to many eye tragedies reported to ophthalmologists too late for saving sight. It is therefore important that all persons responsible for examining eyes or for fitting glasses should not mistake the early symptoms and thus be the means of causing unnecessary blindness.

OTHER DISEASES

Other diseases contributing their share to the grand total of blindness are:

Myopia (near sight). Though perhaps not technically a disease, this cause not only of blindness, but also of much impaired sight, is classified here and is discussed in some detail under "Defective Vision."

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(1) "Glaucoma, or Hardening of the Eyeball." Edward Jackson, M. D. Published in *Hygeia*, September, 1926.

Purulent conjunctivitis. Produced by measles, scarlet fever, diphtheria, erysipelas, eczema, etc.

Phlyctenular disease. A frequent accompaniment of very poor living conditions.

While no special statements about all of these causes are attempted here, universal education in eye hygiene, especially during illness, would unquestionably result in a considerable diminution of loss of vision through their ravages.

In view of the serious amount of vision loss resulting from accidents in civil and industrial life, that cause of blindness is considered separately in the following chapter.

Chapter V

ACCIDENTS

With the development of inventions and the consequent rapid expansion in manufacture and transportation, a large increase of the blind population has been the result of the hazards of industrial life. Prof. Harry Best's statement (1) that "external injury constitutes the most important cause of blindness through the greater part of life" is supported by the estimate (2) that in the United States approximately 15 per cent. of the blind are so as a result of industrial accidents. It is a very evident fact that a still greater number have vision so impaired by injury as to be handicapped for life.

A report of the Danish Society for the Blind (3), while speaking encouragingly of the decrease in blindness from a number of causes, says "the growing complexity of industrial conditions and the frequency of accidents and cases of chemical poisoning have brought about an increase in adult blindness," and attention is called by the International Labour Office (4) to the importance of eye protection as constituting an essential point in industrial hygiene. In this class of blindness especially one finds evidence of the tremendous economic waste resulting from loss of efficiency and the actual financial cost of compensation. To mention an example from the United States: over a period of eight years under the Workmen's Compensation Act in the State of Pennsylvania, compensation for loss of eyes constituted more than 40 per cent. of the amount awarded for permanent injuries. In other words, of a $15,332,220 total, $6,201,762 were awarded for eye accidents, a greater sum than the combined compensation for loss of legs, arms, and feet and from miscellaneous injuries. According to M. Frois in the February 1928 *Bulletin* of the Union of Metallurgical, Mining, Mechanical Engineering, Metallic Construction and Allied Industries (1), industrial accidents cause an annual loss of 30 million working days in France and impose on that country a burden of five and one half billion francs per annum.

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(1) *The Blind,* Harry Best. MacMillan and Co. New York.

(2) *Eye Hazards in Industrial Occupations,* Louis Resnich and Lewis H. Carris, National Society for the Prevention of Blindness, United States.

(3) *Report on the Position of Blind Children in Denmark to the League of Nations,* Child Welfare Committee. C. P. E. 136, Jan. 25, 1928.

(4) *Occupation and Health.* International Labour Office, Bul. 98.

M. Frois further states that 85 per cent. of these accidents are avoidable and the experience of many industrial corporations shows that blindness from this cause may be very materially reduced. For example, the Pullman Company, one of the largest industrial organizations in the United States, reports the saving from serious injury or destruction of sight of approximately 1,000 men since the adoption of regulations demanding the use of protective goggles. Another company records a decrease in accident cost from $16,500 to $200 a year. Still another reports a steady reduction of eye injuries from 103 in 1924 to four in 1927 as a consequence of the use of protective devices. The 1927 report of Compulsory Accident Insurance in Switzerland (2) speaks of hopeful progress in the field of accident prevention and of diminishing prejudice towards the use of safety devices.

The list of causes of eye injuries and the occupations in which they most frequently occur cannot be given in this report. For such information the reader is referred to *Eye Hazards in Industrial Occupations*, published by the National Society for the Prevention of Blindness, New York, and to the Report of the Departmental Committee of the Ministry of Health of Great Britain (3).

Definite ways in which blindness from this cause may be reduced are through:

1. Understanding by the employer of dangers involved and active co-operation on his part to prevent accidents.
2. Provision of proper safety devices in hazardous occupations, such as goggles, masks, etc. for workers ; screens, bands, etc. for machinery.
3. Education of superintendents, foremen and workmen as to frequency and danger of eye accidents, and the use of safety devices.
4. Provision of proper first aid facilities.
5. Education as to the importance of prompt professional treatment for all eye injuries.
6. Provision of proper natural and artificial illumination in work places.

It is probable that legislation, compensation for injuries and other Governmental regulations will continue to play a most important part in forcing industry to reduce accidents of all sorts, and that this will be advanced by the modern tendency to make industry responsible for loss of life, and for permanent injury. The contribution of volunteer safety movements in the industrial field is also well recognized.

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(1) International Labour Office, *Industrial Safety Survey*, May-June, 1928.

(2) International Labour Office, *Industrial and Labour Information*. September 24, 1928.

(3) Published by His Majesty's Stationery Office in London.

The need of standardized effort for the prevention of industrial accidents is apparent, and efforts to meet this are noted in the constantly broadening programmes of labour bureaux and the increasing number of national safety organizations. Ludwig Pfisterer, Director of the *Landes-Arbeiterversicherungs - Institut* in Budapest, says : "Everywhere the essential basis of the safety movement lies in recognizing and appreciating the economic value of accident prevention to the employer" (1), and again, "One thing should be certain, that is, the view that the work of accident prevention is in the best interest of both employers and employed and that therefore in this work all class, political and economic differences should be put in the background". The importance of international co-operation in the prevention of accidents is emphasized by authorities in the industrial field.

A report on the situation in Germany prepared by the German Red Cross indicates that more than 50 per cent. of blindness due to accident occurs before the fifteenth year of life, notwithstanding the vocational hazards encountered by adult workmen. A Joint Committee for the south-west of Scotland in analyzing the causes of blindness in the large industrial area of Glasgow, found that of 16 per cent. due to injury, non-industrial accidents were responsible for twice as many causes as were occupational injuries. Though these proportions may not hold good in other countries, there has been unquestionably an increase in blindness from recreational accidents among all ages. France, Belgium and Germany record an appreciable amount of blindness from hand grenades found in liberated regions — a temporary hazard due to the war, it is true, but one that calls attention to the constant incidence of blindness as a result of the careless use of dangerous toys and firearms. Automobile accidents, so universal in this day, and so frequently accompanied by flying fragments of glass, account for numerous eye injuries. As a step towards the reduction of such accidents a number of countries, notably Denmark and many States of the United States, are demanding through legislation that drivers of motor vehicles be in possession of full seeing powers.

Chapter VI

SERIOUSLY DEFECTIVE VISION

It is impossible to estimate the extent of seriously defective vision, but unquestionably many times the number of blind have such poor sight as to be vocationally handicapped. The demands of education and of modern life involve close use of the eyes in many callings, and with the increase in such demands the general prevalence of poor eyesight has become more and more evident. It is also probable that an actual increase in the amount has resulted from the strain of such constant use.

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(1) *Lessons of the American 'Safety First' Movement*, Ludwig Pfisterer. Industrial Safety Survey, September-October 1928, International Labour Office.

With improvement in the conditions under which we work, study, read and play, a decrease in defective vision may to some extent be expected, and advances in optical science have made possible the relief by properly fitted glasses of much avoidable fatigue, inefficiency and unhappiness.

Below are listed the four most common visual defects responsible for poor sight among children and adults.

MYOPIA

(Near-sight)

This condition of the eyeball, which prevents the light rays from focussing on the sensitive area in the retina, is very common among schoolchildren and constitutes a serious visual defect which may progress during the growing age and lead eventually to partial or total blindness.

The cause of myopia is unknown and early statements attributing its incidence to close eye work under improper conditions need verification in the light of present-day science. The importance of proper hygiene and professional advice as to treatment and use of the myopic eye, however, cannot be over-emphasized.

Dr. James Kerr (1) tells of the beginning in 1908 of special "myope classes," so named because of the preponderance of near-sighted pupils, but established for the purpose of educating under advisable conditions all children with vision so defective as to be injured by the use of ordinary school equipment. The estimate of 7,000 partially sighted children in England and Wales (2), and a statement from the United States National Society for the Prevention of Blindness that from the most conservative point of view one out of every thousand school children has vision requiring this specialized education, bring forcibly to our attention the general need of such care. The United States Society further states that in many localities the average rises to one in 500. Progress along this line in that country, Great Britain, Canada and Germany is reported elsewhere in this account, and the reader will note that Austria, Denmark and Switzerland have also undertaken the establishment of sight-saving classes, while France has the matter under consideration.

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(1) *School Vision and the Myopic Scholar*, James Kerr, George Allen and Unwin Ltd, London.

(2) Great Britain Ministry of Health, Advisory Committee on the Welfare of the Blind, *Seventh Report*, 1926-7.

HYPEROPIA (Far-sight)

It is the usual thing for very young children to have some degree of hyperopia, a condition where shortness of the eyeball hinders accurate focus. In general, this defect may in good part correct itself with the growth of the child through development of the eyeball toward a normal length. When nature does not bring about the desired change, hyperopia may prove a serious vision handicap.

ASTIGMATISM

Even the so-called normal eye may be slightly astigmatic, with minor errors in focussing partly corrected through the natural process of accommodation. The more severe cases, however, constitute dangerous strain and are frequently a source of profound nervous disturbance, showing sympathetically both in the vicinity of the eye and in organs remote from it. Astigmatism may be associated with hyperopia or myopia and thus complicate the other eye defect.

PRESBYOPIA

This condition, first noticeable in middle life, is the result of a gradual decline in the powers of accommodation. Increased difficulty is experienced in focussing the eyes on nearby objects, and without the necessary correction by lenses, continued use of the eyes for close work is not only a source of immediate discomfort but of actual danger in the possibility of serious consequences.

In any efforts to reduce the extent of the above-mentioned defects and of those other, possibly minor, ones which contribute their share to the toll of visual inefficiency, the public generally must be educated as to the importance of good sight and the best professional means for correcting poor vision. It must be taught to recognize the influence upon eye health of good hygiene and illumination and to appreciate its own obligations in conforming to required standards.

Definite responsibilities of the school in sight preservation are outlined in Chapter IX. Let us only emphasize here that all persons engaged in the education of school children must realize that sight is the most important avenue of approach to the brain and that poor vision may be a formidable bar to educational progress unless properly considered.

Chapter VII

DIRECT PREVENTION OF BLINDNESS ACTIVITIES

Progress in the field of health by governmental agencies is well recognized. Control of midwives and regulations as to their training and practice are more and more general ; reports of *l'Union internationale contre le péril vénérien* and of national public health organizations show a constantly broadening attack against venereal disease with its trail of harmful consequences. These activities, as well as the work of other agencies in the field of health, contribute immeasurably to the saving of sight. Let us confine ourselves here, however, to a statement of direct work for the prevention of blindness and of conditions that seem particularly noteworthy. The data are gathered from references at hand and no claim is made that they tell a complete story. Rather is this chapter presented as a sketch to be filled in and extended after further international study, when additional information from these and other countries may be available.

In reading what follows the impression may be got that the question of blindness prevention is fairly well met through the activities mentioned. Let us bear in mind, however, that reports all too often show only the most optimistic point of view and fail to bring before us the immense field which remains uncovered.

AFRICA

No estimate is at hand of the number of blind in Africa. From all accounts trachoma figures largely as a health menace, particularly in the North, and is the most prominent cause of vision loss. Dr. Petit in *Report on the Prevalence of Trachoma in Various Countries* (1) gives the percentage of trachoma among schoolchildren of Southern Tunisia as from 90 to 98 per cent. and Dr. Baruch in examining 10,000 blind Algerians found that 27 per cent. had lost their sight through trachoma.

The Report on the Prevalence of Trachoma in Various Countries (2) speaks of trachoma being imported into Morocco, at Tangiers. In Gambia, conjunctivitis is listed among the most prevalent diseases by the Department of Health, which goes on to emphasize the ''great amount of deficient vision even among the children, amounting to semi-blindness in very many cases.''

A branch of the Valentin Haüy Association is established in Northern Africa, and is carrying on a programme for the blind and for prevention of blindness.

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(1) The League of Nations (Health Section) presently undertakes a vast inquiry on this subject.

(2) League of Nations, C. H. 447, 448 and 605.

ARGENTINE

No more recent figures are at hand for Argentine than the 1895 census, which reports 3,525 blind. That trachoma constitutes one of the serious causes is suggested by the fact that the National Department of Health has in recent years added a section for ''prophylaxis'' of trachoma and infectious eye diseases.

In 1927, the national Red Cross opened an active campaign against trachoma, which in co-operation with the Health Department is planned to include intensive work in the schools and educational propaganda among the general public.

The Journal of the American Medical Association for May 2, 1925, tells of trachoma being brought into Argentine formerly through the neglect of the immigration authorities. Now, however, very active supervision is exercised in this regard, which perhaps accounts for a decline of the disease in the large coast cities.

ARMENIA

Work for the blind is carried on by the Government and by voluntary agencies receiving Government subsidies — notably the Royal Victorian Institute for the Blind and the Association for the Advancement of the Blind.

An interesting study of the therapeutic aspects of trachoma (1) is being conducted at Leninakran, Armenia, by the Near East Relief, which through its doctors and nurses is reaching large numbers of children in orphanages and throughout the city.

AUSTRALIA

In Australia the 3,154 blind persons registered in 1921 are distributed as follows throughout the provinces:

New South Wales	1,057
Victoria	988
Queensland	479
South Australia	333
Western Australia	155
Tasmania	141
Federal Territories	1
	3,154

The National Safety Council, Melbourne, conducts an active campaign for the promotion of public and industrial safety and the prevention of accidents.

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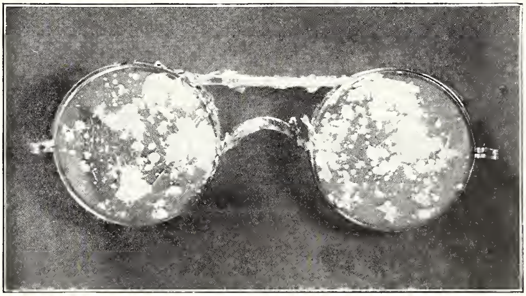
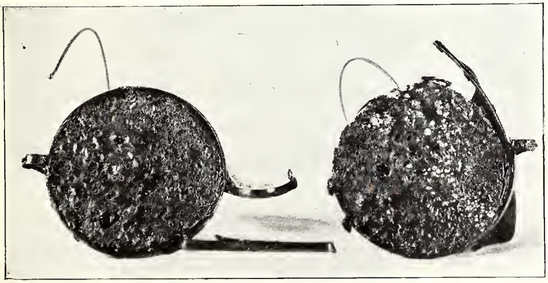
(1) *Treatment of Trachoma by Surgical Diathermy*, Dudley C. Kalloch, M. D., *The Journal of the American Medical Association*, October 29, 1927.

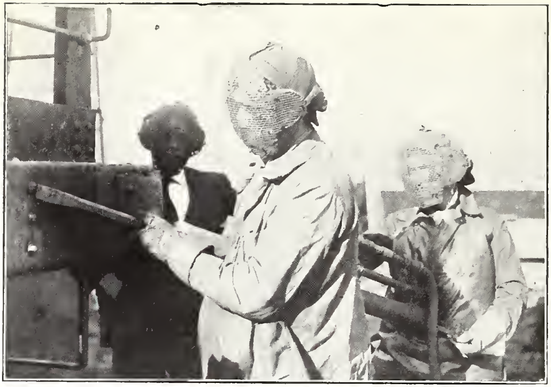
The welder holds the mask for the protection of his eyes in place with the left hand and uses the welding torch with the right hand



An accidental splash of molten metal ruined these lenses and burnt the workman's face, but the goggles saved his eyes



One week's use in spot welding was all it took for the pair of spectacles shown above to become thus spattered with steel



Mask for men engaged in rivet cutting. Goggles alone do not afford adequate protection in this operation because the powerful pneumatic chisels used today often send rivets heads flying with such force as to break the best goggles available

A light weight and comfortable mask which protects the eyes of the arc welder

Courtesy of National Society for the Prevention of Blindness

AUSTRIA

Authoritative statistics as to the number of blind in Austria are lacking.

The Burgenland district only seems to be affected by trachoma, and here a governmental anti-trachoma campaign has already brought about a decrease in incidence since 1924.

Control and training of midwives is regulated by Ministerial Decree of December 30, 1925, which makes obligatory for midwives the use of silver nitrate in babies' eyes.

Vienna has three sight-saving classes looking after 40 children, the first one having been organized in 1923.

BULGARIA

Statistics as to the number of blind in Bulgaria are not at hand. *The Report on the Prevalence of Trachoma in Various Countries* (1) estimates that one out of every 1,000 of the population is trachomatous and speaks of plans by *la direction de la santé publique* for an anti-trachoma campaign as soon as funds are available for mobile units. Patients are now being treated in ophthalmological hospitals and dispensaries.

Maternity divisions of general hospitals in the provinces carry short courses for rural midwives. Obligatory vaccination against smallpox and educational propaganda through the hospitals are other preventive measures noted.

BELGIUM

Here the 2,786 blind persons as registered by the 1926 census are distributed as follows:

Antwerp	313
Brabant	504
Flanders, occidental	368
— oriental	281
Hainaut	625
Liège	375
Limbourg	138
Luxemburg	47
Namur	135
	2,786

It is interesting to note a steady decrease of pupils in institutions for the blind, from 521 in 1914 to 403 in 1927 — a decrease that might be attributed to a decided improvement since the War in general hygiene and in child care, to activities of the anti-venereal organizations, and particularly to a more general use of silver nitrate in the eyes of all new-born. Though not an obligatory measure, this prophylaxis is widely recommended.

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(1) League of Nations, C. H 447, 448 and 605.

As to the industrial situation, the Young Workers' Christian Association carries on educational propaganda through exhibitions, pictures, etc.; the General Association for Mutual Insurance against Industrial Accidents, at Ghent, is active in prevention work, and conducts statistical studies; the Belgian Association of Industrial Employers for the Prevention of Accidents and the Ministry of Industry, Labour and Social Welfare issue educational material.

CANADA

The 1927 census lists 4,712 blind persons, but the actual number in Canada is estimated at between 6,500 and 7,000. The following causes given for 290 children under 15 years of age in schools for the blind are an indication of the proportion of blindness that might have been prevented:

Accidents	16
Albinos	3
Cataract	36
Corneal ulcer	4
Consanguinity of parents	15
Heredity	6
Inflammation	6
Interstitial lentitis	5
Congenital malformation	25
Myopia	3
Nystagmus	4
Ophthalmia neonatorum	47
Optic neuratrophy	12
Results of illness	29
Congenital syphilis	4
Trachoma	3
Unindicated	87
	305

The first Canadian Sight Saving Class was established in Halifax to care for the children whose eyes were injured by a great explosion in the harbour in 1917.

Examination of school children in Toronto revealed the presence of 411 with visual acuity below 1/3 of normal in the better eye, and as a result of this survey four sight-saving classes were opened in that city by the Board of Education. Several other large centres of the Dominion have established classes, and still others have the matter under consideration.

National regulations provide for the notification and control of trachoma, ophthalmia neonatorum, acute infectious conjunctivitis and venereal disease.

Legislation providing for the obligatory prophylactic treatment of the eyes of the newborn is effective in six provinces, in some of which "argentol" is furnished free to physicians.

Supplementing the work of the General Department of Hygiene, the Canadian National Institute for the Blind since 1919 has carried on a continuous educational programme for the prevention of blindness among the newborn, pre-school and school age children, industrial workers and the general public.

Of noteworthy importance in its campaign are the distribution of literature, conduct of training courses in normal schools and for teachers of sight-saving classes, the promotion of better school lighting and equipment and co-operation with local Boards of Health in securing general legislation for prophylaxis of the eyes of the newborn.

Definite action is being taken by the industrial accident prevention associations to reduce the number of injuries.

CHINA

Though no definite figures are at hand as to the blind in China, some estimates place the number as high as one million (1). Dr. Howard states: "There are probably not less than one-half million people in China to-day who are blind in both eyes; probably five millions more who are blind in one eye and at least 15 millions who are nearly blind, many of whom will be totally blind within a few years." (2)

Dr. Howard names trachoma as the cause of over half of this blindness and more responsible, directly and indirectly, for economic loss to the country than any other single factor. In a report on the prevalence of trachoma in various countries, Dr. L.-M. Li of Peking Union Medical College states that "trachoma is the most prevalent of all eye diseases in China, affecting 20 to 30 per cent. of the population in the Southern and 50 to 60 per cent. in the Northern provinces."

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(1) *The Blind in China*, China Continuation Committee, February, 1920.

(2) *Trachoma in China*, Dr. Harvey J. Howard, Peking Medical College, 1925.

The following tabulation of causes of blindness among a group of 760 is of interest (1):

Trachoma	398
Cataract	83
Syphilis	76
Glaucoma	73
Bacterial infection	48
Injuries	44
Other causes	63
Not known	278

Dr. Emile Lossonaru, Professor at the School of Medicine in Tientsin, in *La prévention de la cécité en Chine* (2) speaks of gonorrhoeal ophthalmia, phlyctenular keratitis and xerophthalmia as being also very prevalent and of smallpox causing much blindness, and he cites in explanation of these conditions the lack of prophylaxis at birth, lack of general medical care, bad hygiene and insufficient vaccination.

Though China has been slow in its development of public health legislation and regulations, a number of movements are on hand that should lead to a reduction of blindness. At the instigation of the China Continuation Committee, the Mandarin Braille Literature Committee was reconstituted as a Committee for the Promotion of Work for the Blind, and now includes in its programme a study of causes of blindness and educational propaganda ; the Police Public Health Demonstration, Peking, conducts school and industrial surveys and has a definite programme of medical care and education; the Council of Health Education includes prevention of blindness work among its activities; a *Ligue internationale pour la prévention de la cécité en Chine* was appointed in 1924, with the device *Instruire et Soigner*, and in 1927 a committee for the prevention of blindness was formed which, according to Mr. George B. Fryer, Superintendent of the Institute for the Chinese Blind, will take up work on a small scale, beginning with the schools.

CYPRUS

According to the Department of Health reports, trachoma, a notifiable disease, is very prevalent on the island, cases being reported each year in increasing number.

Reports also speak of midwife training as an important part of the work at Nicosia Hospital, and of the need for ophthalmological training for rural medical officers.

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(1) *Causes of Blindness among Chinese*, W. P. Ling, National Medical Journal of China, September 1923.

(2) Reported in *La Presse Médicale*, June 9, 1926.

CZECHOSLOVAKIA

The number of blind and partially blind in this country is estimated at 5,000 but no distinction has been made between the two classes. The total includes 600 blinded in the World War.

Trachoma, especially in Slovakia, is a big problem, the cases registered in 1926 numbering 3,502, an increase of 720 over those reported in 1924. In 1925 the Government opened a systematic campaign through the establishment of 65 special dispensaries in those districts most seriously affected, and this building programme will be extended.

DENMARK

The 1,800 estimated blind in Denmark are under the care of State and private institutions, the latter in most instances receiving subsidies from the Government.

As to causes, a report from the Danish Society for the Blind contains the following interesting statement: "With the growth of hygiene, particularly as regards the care of newborn children, the number of blind children is greatly decreasing, while at the same time the growing complexity of industrial conditions and the frequency of accidents and cases of chemical poisoning have brought about an increase in adult blindness."

Records at the Royal Danish Institutes for the Blind show 16 born during the period 1900-1904 as blind from ophthalmia neonatorum, while only two cases have been received at the Institutes since 1912. This improvement can no doubt be attributed to the fact that since 1900 the use of nitrate of silver in the eyes of the newborn by midwives has been obligatory according to regulations of the National Board of Health, and to the work of a staff of 1,100 midwives whose training is supervised by the Ministry of Education.

The campaign against venereal disease in Denmark is carried on under local government with grants from the State. *Health Organization in Denmark* (1) speaks of the noteworthy decline during recent years as a result of State legislation and rulings, and further states that "the rural population is now, practically speaking, free from these diseases."

During recent years special instruction has been given to partially-sighted children in schools for the blind, through the help of optical instruments, and sight-saving classes have been established in a Copenhagen public school.

Causes of Blindness in Children (2) tells of plans under consideration for a commission to study means of preventing blindness, and as the result of

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(1) League of Nations ,C. H., E. P. S. 49, 1924 and 1926.

(2) *Causes of Blindness in Children*, Gordon Norrie, *Acta Ophthalmologica*, Copenhagen, 1927.

25 years' experience in the Danish Royal Institutes for the Blind, Dr. Norrie makes the following recommendations:

1. Education in regard to hereditary blindness.
2. Prenatal care.
3. Universal employment of silver nitrate.
4. Cleanliness.
5. Balanced diet.
6. Expert treatment for injuries to avoid sympathetic ophthalmia.

DUTCH EAST INDIES

Reports indicate that trachoma is common among adults and children. It is not notifiable and combative measures are taken only when outbreaks occur (1).

Public health education in the Dutch East Indies is yet in the early stages.

EGYPT

The 1907 census notes 148,280 blind in Egypt, exclusive of Badawi, i. e. 1,325.1 per 100,000 of the population. Recent public health reports give quite a different proportion, but the latter also indicate the seriousness of the situation. Figures are as follows per 1,000 of the population:

	1907	1917
Total blind in one eye	32	31
— — in both eyes.	13	12

A fund for the prevention of blindness has been started by supporters of "Lighthouses for the Blind" in France, Italy and America, who have had increasing interest in the preventive aspect and whose attention has been called to the need of educational work in Egypt. The fund will be administered under the direction of the American University of Cairo.

The reports further state that in 1926, 28,681, or 10.1 per cent. of patients examined in ophthalmic hospitals and clinics were found to be blind in one or both eyes — a percentage that has gradually fallen from 15.3 per cent. in 1919. Acute ophthalmia was responsible for 74.5 per cent. of the cases in 1926, when the largest proportion was found to be caused by the gonococcus.

Glaucoma and cataract are listed among the principal eye diseases, while according to Dr. A. F. MacCallan, Director of the Ophthalmic Section of the Egyptian Department of Health, trachoma affects more than 95 per cent.

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(1) *Trachoma in the Dutch East Indies*. League of Nations, C. H. 622, August 25, 1927.

of the population and results very frequently in diminution of vision, though less often in blindness.

Through the influence and financial aid of Sir Ernest Cassel, travelling ophthalmic hospitals were originated under the direction of Osborne, Meyerhof and Peretz which led to the development on a large scale of ophthalmic hospitals and travelling clinics by the Department of Public Health (1), which also carries on extensive educational work. The number of child welfare centres is being increased by the Public Health Department, with special emphasis laid on eye care, and a system of school medical inspection is followed with a view to correct handling of trachoma cases.

In a September 1928 report to the Prime Minister and the Commission on Labour Legislation, Dr. Mahgoub Sabet recommended the establishment of a Department of Labour, one duty of which would be the study of safety provisions for workers employed in dangerous trades.

ESTONIA

The blind population is given by M. Nisot (2) as 2,170 in 1919-20, and trachoma is named as one of the out-standing eye diseases met with in greatest frequency on the eastern frontiers. Trachoma was made reportable in 1919, but no organized campaign against it is noted.

FIJI

In speaking of trachoma in Fiji, the Department of Health says :

"Inspection of such districts as has been carried out suggests rather strongly that this disease is among the Fijians and responsible for more suffering and physical inefficiency than is any other disease... no person the subject of this intractable disease should be permitted to land. That the disease is already present in the Colony is no argument against the necessity of this and other measures directed to prevention and treatment." (3)

FINLAND

The 1900 census gives a blind population of 3,229 and no later authentic figures are available, though references studied point to a diminishing number.

Enquiry as to the incidence of trachoma was started by public health authorities in 1924, and an estimate of decrease from 100,000 cases in 1908 to 70,000 in 1924 is noted.

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(1) The History of Ophthalmology in Egypt, A. F. MacCallan, *British Journal of Ophthalmology*, December 1927.

(2) *L'Enfance Aveugle.* P. Nisot.

(3) Department of Health, 1926 *Annual Report.*

In an effort to prevent industrial accidents a number of regulations provide for the inspection and protection of machinery, education of workmen, provision of first aid, etc., and through these means the Ministry of Public Welfare supervises the health and working conditions of the industrial classes.

FRANCE

The blind population of 1901 is given as 27,174, a figure that does not include, of course, the later addition of 3,500 war blind. Estimates are that blind children in France number approximately 1,500, of whom 1282 are being educated in special schools (1).

M. Villey reported in 1925 that of 214 pupils at *l'Institut National de Paris,* 17.5 per cent. were blind from ophthalmia neonatorum, but evidences are that blindness from this cause is on the decrease since February 1926, when the *Conseil supérieur d'hygiène* passed regulations calling for the prophylactic treatment of babies' eyes immediately after birth and recommended the use of silver nitrate.

Other recommendations adopted by the council in 1926 were:

1. That the campaign against venereal disease, particularly gonorrhoea, should be more actively pursued;
2. That the Ministry of Public Health should forward to midwives every two years a circular reminding them of the persistent danger of ophthalmia neonatorum, the means at their disposal for preventing it, the value of nitrate of silver for prophylactic purposes and the necessity of calling in a doctor in doubtful cases;
3. That the Ophthalmological Society of Paris, after having noted the statistics for cases of blindness due to purulent ophthalmia in newborn children, should be requested to give its opinion as to the expediency of making the use of prophylactic medicaments compulsory as a means of preventing ophthalmia in newborn children;
4. That inspection of the eyes should be organized all over France.

Trachoma, made reportable in 1923, appears on the increase in the southern part of the country, where, to a great extent, it is imported by aliens landing at Marseilles. A resolution adopted by the *Conseil supérieur d'hygiène publique* and presented to the public authorities provides: "That measures be taken to establish in France and in the French colonies an effective and complete prophylaxis of trachoma, organized according to present knowledge and supported by the necessary funds, with the object of stopping the development of this scourge." Recommendations of the League against Trachoma call for the regulating of immigration and of industrial hygiene; the Ministry of Labour also has the question of trachoma in connection with industrial life especially in mind. A department for the prevention of accidents established by the Union of Metal Industries and the French Association of Industrial Employers for the Prevention of Accidents both publish educational material. In October, 1928, at a Congress of French Departmental Committees on Labour in Industry, resolutions were adopted for the appointment of safety delegates in all industries, including transport and agriculture.

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(1) League of Nations, C P. E 92, April 30, 1927

According to law, school medical inspection, including visual acuity tests, is obligatory in each department under the authority of the prefect. Recommendation has been made to the Superior Council for Public Welfare by M. Villey, Secretary General of *l'Association Valentin Haüy*, that special classes be opened for children with defective sight, at least in towns with any considerable school population, and that these classes should conform to generally accepted standards (1).

L'Association Valentin Haüy, a powerful organization working in the interest of the blind, carries on a continual educational campaign in France through the distribution of leaflets to mothers, industrial workers and the general public.

GERMANY

The number of blind reported by the 1924 census is 34,703 exclusive of Wurtemburg and Lübeck. In a report to the League of Nations (2) on 2,757 institutional cases during the period 1919-1924, 25.83 per cent. were counted congenitally blind and 74.17 per cent. as having acquired blindness, and in a report to the League of Red Cross Societies from the German Red Cross, the following principal causes are mentioned, with accompanying notations:

1. Trachoma. Reportable by law.
2. Venereal Disease:
   - *a.* Gonorrhoea. Obligatory treatment provided for by law of Empire.
   - *b.* Syphilis. The persistent decrease of the number of cases of syphilitic contagion which has taken place during the last few years permits us to hope that syphilis will disappear completely as a cause of blindness.
3. Ophthalmia neonatorum.

The midwife is obliged as a rule to instill nitrate of silver, 1 per cent. solution, in the eyes of the child. According to a recent rule, she must carry with her this solution in the form of ampules. Infection at the moment of birth is actually reduced to a minimum.

4. Smallpox is combated by obligatory vaccination.
5. Glaucoma.

6 and 7. Unpreventable causes.

8. Accidents. Thirty-seven per cent. of total population follows lucrative profession, 72 per cent. of these protected by obligatory industrial insurance, borne by industry itself. Industries must see that protective devices are installed in factories and measures taken for prevention.

Further consideration of causes discloses a decided diminution since 1913 in trachoma in Oriental Prussia, where formerly great frequency was encountered, decrease probably attributable to advances in hygienic measures and control of schoolchildren since the war.

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(1) League of Nations, C. P. E. 92, April 30, 1927.

(2) League of Nations, C. P. E. 144, March 19, 1928.

In spite of regulations for the protection of men in industry, factory inspectors report (1) a considerable increase in the number of accidents, though eyes are not specifically mentioned. Such increase, due in large part to changes in system caused by employment unrest, is being met by a steady development of accident prevention work on the part of the factory inspectors in co-operation with the industrial corporations, the Government, the Prussian Mining Security Office, and the Central Office for Accident Prevention.

School medical inspection is carried out in nearly all cities, though far from complete in the rural districts. Sight-saving classes established in Berlin, Hamburg, Leipzig, Mulhausen and Dortmund are caring for some of the children with serious visual defects, while extension of this work is being considered.

The German Red Cross takes an active part with a number of official and private agencies in educational propaganda. It offers to serve as intermediary for any international organization for the prevention of blindness that may be formed.

GREAT BRITAIN

The blind population of England and Wales is registered as follows:

1911	National census	26,336
1922	Blind Persons Act	34,894
1925	— — —	42,140
1927	— — —	46,822

Age groups into which the 1927 figure is divided may be of interest:

0-5	258
5-16	2,554
16-21	1,670
21-30	3,162
30-40	4,474
40-50	5,331
50-60	7,495
60-70	9,737
over 70	11,958
unknown	183
	46,822

The marked predominance of blindness in the older age groups and a decrease of 177 in the number under 21 years in 1927 as compared with 1925, indicate success in prevention of blindness measures, and a number of instances point to an improvement in the situation. Ophthalmia neonatorum, formerly one of the most frequent causes of blindness, is being steadily reduced as a result of the campaign against this disease (1), details of which are given in this report, and the number of trachoma cases treated in eye hospitals, dispensaries and special ophthalmic schools shows a decreasing tendency (2). Although long standing cases of trachoma still constitute a factor demanding supervision, the occurrence of fresh cases is, at any rate in England, limited, ''since the exaction of more stringent medical examinations for immigrants'' (3).

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(1) International Labour Office, *Industrial Safety Survey*, September-October 1928.

In addition to the effective campaign against ophthalmia neonatorum by the Ministry of Health, referred to above, that body has adopted excellent measures for the prevention of blindness from various causes, for details of which the reader is advised to consult the British Report directly. Other recommendations contained therein relate to the proper lighting of factories and workshops and eye protection in industry, and to extended provision for the education of children with seriously defective vision. By the Education Act of 1921, local education authorities are required to attend to children's eyesight in public elementary schools, and special classes for those suffering from seriously defective vision are in operation — 79 in 13 English cities, providing for approximately 900 children in London alone. The Council of British Ophthalmologists, founded in 1918 ''to act as an authoritative and representative body to assist Government departments and other representative bodies in, amongst other things, measures for the preservation and welfare of the eyesight of the community (4)'', recommends the establishment of these classes in all larger centres of population; also the instruction of teachers in country districts in regard to education and management of visually defective children.

Industrial legislation began with the Safeguarding of Machinery Act in 1884, though provisions were limited (5). The Factory and Workshop Act of 1901, requiring the protection of all dangerous machinery, can be called the backbone of existing legislation, which with the activities of the National Safety Association and other bodies forms a strong power against the incidence of eye accidents in industry.

Steady improvement in midwife regulations and in maternity and child care, increase in the number of competent medical practitioners, together with the educational propaganda conducted by various agencies, contribute their share to the campaign against preventable blindness.

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(1) *Handbook on the Welfare of the Blind in England and Wales*, Ministry of Health Advisory Committee on the Welfare of the Blind, 1927.

(2) League of Nations, C. H. 447, 448 and 605.

(3) Ministry of Health Departmental Committee. *Final Report*, 1922.

(4) Mr. Treacher Collins.

(5) International Labour Office, Studies and Reports, Series F, No 9, Report by G. Stevenson Taylor.

GREECE

Since the influx of refugees from Asia Minor, it is estimated that the number of 5,384 blind as given in the 1920 census has increased to approximately 7,000, or one per 1,000 of the population. The fact that trachoma constitutes a principal cause is evident on examination of statistics furnished by the departments. It is, apparently, widespread throughout the country and according to estimates (1) affects from six to seven per cent. of the population. The same authority states that blindness follows in six per cent. of all trachoma cases treated in dispensaries and clinics.

A continued campaign against this disease, vaccination, and prophylaxis of babies' eyes by silver nitrate are noted as the principal measures against blindness in Greece. The Ministries of Health and of Education, the Greek Red Cross, hospitals and dispensaries, Near East Relief, institutions for the blind, American Women's Hospitals Association, and other agencies have participated in the trachoma campaign in schools, in orphan asylums, and among the general public.

HOLLAND

The 1920 census, listing 3,822 blind, distributes these in the following age groups:

0-15	447
16-29	404
30-59	1,221
60 and over	1,750

Causes of blindness are not named, but undoubtedly some is the result of trachoma. Dr. Jitta writes (2) "Trachoma in Holland is found almost exclusively among the Jews and particularly among those living at Amsterdam, where they form about one-tenth of the population. The number of Christians suffering from trachoma is very small in comparison... The movement of emigration of the Jews from Poland and the neighbouring countries began chiefly during the 18th century and it is likely that trachoma was prevalent among these emigrants, who settled gradually in the Netherlands."

In *La Revue internationale du Trachome,* M. Zachert speaks of the decreasing incidence in schools, a statement born out by Drs. Wibaut and Smit (3), who predict that trachoma will be wiped out in ten or 20 years if the present

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(1) *Trachoma in Greece,* Dr. Ph. Copanaris, League of Nations, C. H. 580, March 28, 1927.

(2) *The History of Trachoma in Holland,* N, M, Josephus Jitta, League of Nations, C. H., 408.

(3) League of Nations, 408.

sent progress continues. A commission appointed in 1913 by the Amsterdam Municipal Council and charged to investigate and decide on measures to check trachoma is responsible for the development of this effective programme which includes periodic inspections in Government schools, special treatment centres and exclusion from schools of trachomatous children.

Recommendations for further work have been made to the Government by *La Commission d'Etat pour l'Amélioration du Sort des Aveugles et des Demi-Aveugles aux Pays-Bas.*

HUNGARY

The census of 1920 gives 5,783 blind, and trachoma seems to be the leading cause. Change in population during the War evidently brought about a great increase in this disease; the number of patients under treatment in 1917 is given as 12,952.

A law of 1886 and Ministerial Decree of 1903 form the basis of activity for prevention of trachoma, (1) which includes notification of the disease, establishment of special hospitals, travelling oculists, conferences, financial relief, etc.

Principal measures followed in the prevention of blindness from other causes are vaccination and the use of silver nitrate in babies' eyes.

The National Association for the Protection of the Blind, subsidized by the Government, conducts some educational work for the prevention of blindness. It is noted that Budapest has a good system of school medical inspection with plans to install oculists.

INDIA

The 1911 census gives 443,653 as the number of blind in India — 141.6 per 100,000 of the population. Later records show 170 per 100,000 in Bijapur district, and 400 per 100,000 in Sind District, exclusive of the large number of partially sighted. The estimated proportion per 100,000 for the whole of India is 260 (2).

Granular lids, cataract and glaucoma are the most common causes while smallpox continues to take a heavy toll. Trachoma, endemic throughout India, is at its height in the hot, dry regions of the North West and is particularly prevalent in the cavalry and infantry regiments of this frontier region.

The Blind Relief Association formed in 1919 "for the purpose of carrying out measures for the prevention and relief of blindness," conducts extensive educational work through its main office and branches at Bijapur, Bombay, Chalisgion, Bulsar, Amand, Travancor and Sind. It also deals directly with sufferers from eye disease through its field workers, who are responsible for discovering actual or potential eye cases and arranging for necessary relief or preventive measures.

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(1) League of Nations, Health Section, Report on Progress in Public Health in 1924.

(2) League of Nations, C. H. 686, March 12, 1928.

According to the statement of the All India Blind Relief Association there is some reason, for believing that the census figures understate the position. "It appears not unlikely that the true ophthalmic condition of India would be represented by figures showing one and a half million totally blind persons, and, in addition to these, four and a half million with more or less impaired eyesight."

IRELAND

The 3,250 blind listed in the 1911 census are divided into the following age groups:

Under 5	11
5-10	17
10-15	26
15-20	56
20-50	601
over 50	2,539
	3,250

Of these, 133 are blind from birth. From studies made in 1927, the present number of blind is estimated at 3,280, showing little change from the earlier figure.

According to the British Report of 1922, trachoma is prevalent (1); the percentage of trachoma among eye cases treated at the Dublin Victoria Eye Hospital is given as 3.9 in 1919-20, 6.7 in 1921-22 and 2.2 in 1922-23 (2).

ITALY

The 1911 census shows 28,211 blind, 1,874 of whom are under 15 years of age. There are reported to-day 1,519 war blind.

Of the chief causes noted — ophthalmia neonatorum, trachoma and smallpox — the last is being eradicated by the introduction of compulsory vaccination. Ophthalmia neonatorum is combated by midwife regulations set by Royal Decree of May 29, 1914 and Ministerial Decree of October 5, 1923, providing for the use of silver nitrate in babies' eyes.

Statistics showing that in 1913, 7.05 of each 1,000 young men called for military service had had trachoma at one time, indicate the extent of the disease, especially in the South (3). In 1926, 5.3 of the population in Cagliari, Sardinia, were reported as trachomatous (4).

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(1) Great Britain Ministry of Health, Final Report of Departmental Committee on Causes and Prevention of Blindness.

(2) League of Nations, C. H. 447, 448 and 605.

(3) *Relazione al Consiglio Superiore di Sanita*, Rome, 1926.

(4) International Labour Office. Industrial and Labour Information, Sept. 24, 1926.

On the basis of the Royal Decree of October 23, 1919, a campaign against trachoma was organized which, according to Dr. Marie Rusiecka (1), is the best organized plan followed in any European country. In view of this opinion, it seems well to call attention to some of the outstanding methods as also gathered from *Relazione al Consiglio Superiore de Sanita*:

1. Financial loans without interest to communes, public authorities and to welfare works for the construction, organization and installation of anti-trachomatous dispensaries and sanatoria for persons suffering from trachoma.
2. Subsidies for the creation of said dispensaries and sanatoria to public authorities who cannot guarantee the return of financial loans.
3. Subsidies for the running of the dispensaries and sanatoria.
4. Subsidies for propaganda, for training courses for doctors and for organization of schools for trachomatous children.
5. Administration of these dispensaries under the control of the Ministry, which is responsible for inspection, gathering of statistics, and recording of cases.
6. Special training courses for doctors and health officers, on diagnosis, care and prophylaxis of trachoma and of general ocular prophylaxis.
7. The institution of ophthalmological service among schoolchildren.
8. The establishment of special classes for trachomatous children and of school dispensaries and "ecoles sanatorium." These schools exist in Sicily: Syracuse, Girgenti and Messina.
9. Propaganda among the public and working classes in schools, prisons and churches.
10. Short, intensive courses for school teachers, with practical demonstrations of ophthalmic prophylaxis.
11. Centralized control over anti-trachomatous dispensaries subsidized by the State.

Though in Italy industrial accidents are not listed among principal causes of blindness, this is, as elsewhere, a problem to be contended with. A National Association for the Prevention of Industrial Accidents is beginning an active nation wide programme of education and has under consideration the question of safety devices in industry.

JAPAN

Figures for the total blind population of Japan are not available, but Dr. Kusama (2) reports a survey of 6,396,963 persons in 1925. The study revealed:

Totally blind	26,240 or 4.10	per 1,000	investigated.
Slight optic sense	9,704 or 1.52	—	—
Unable to recognize figures at one metre	5,725 or 0.89	—	—
	41,669 or 6.51	—	—

To quote Dr. Kusama: "The fact that the majority of the cases of blindness are due to the two preventable diseases, trachoma and venereal infection, shows that nearly half of the blindness could be prevented by the stamping out of these conditions."

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(1) *Revue Internationale de l'Enfant*, April 1928.

(2) *The Prevalence of Trachoma and its Preventive Measures in Japan*, Dr. Hiroshi Kusama, *Japan Medical World*, June and July 1928.

Considerably more frequent in the industrial and mountainous districts, trachoma is found to some extent in every locality, though the proportion resulting in blindness seems to vary considerably. The law of 1919 empowers the authorities to conduct medical examinations and institute proper hygienic measures in schools, factories, etc., expenses being met in part by the National Treasury; it also requires instruction and supervision of trachoma patients in preventive measures, and since the enforcement of this law and the use of a uniform standard of diagnosis, a remarkable decrease has been noted. Central and local authorities unite with a number of private societies in educating the public through lectures, pamphlets and other publicity material.

LATVIA

The 1920 census gives the number of blind in Latvia as 3,588. The only indication of causes available is taken from records of the ophthalmological clinic at the University of Latvia, where trachoma, glaucoma, optic nerve atrophy and myopia head the list; of 129 blind in *l'Institut National des aveugles de Latvie*, 82 per cent. are recorded as unnecessarily blind.

Dr. Fehrmann (1) also names trachoma as the main cause of blindness, but states that through measures taken to combat the disease, it is much less prevalent than formerly.

Methods mentioned are:

1. Inclusion in list of infections and notifiable diseases.
2. Inspection and treatment of school children.
3. Provision of trachoma treatment and consultations through hospital clinics and in private practice.
4. Travelling ophthalmic service of Empress Marie's Council for Protecting the Blind, and of governmental agencies.
5. Educational propaganda

Other measures leading to the prevention of blindness in Latvia are the obligatory application of silver nitrate by midwives, and methods of industrial hygiene and protection used by factories and workshops.

LITHUANIA

Though no estimate is at hand of the total number of blind in Lithuania, we have from Prof. Avizouis (1) the following percentage of principal causes of blindness, as compared with Russia, Germany and France:

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(1) *Report on the Prevalence of Trachoma in Latvia*, Dr. E. Fehrmann. League of Nations. C. P. E. 140, March, 19, 1928.

	Lithuania	Russia	Germany	France
	—	—	—	—
Trachoma	26.0	21.4	9.4	1.9
Glaucoma	17.9	19.2	8.9	19.0
Traumatism	4.2	3.7	10.0	6.0
Keratitis	10.5	13.5	8.0	8.0
Ophthalmia neonatorum	1.5	4.9	10.8	9.3

Trachoma is included among reportable diseases; it is being treated in an increasing number of ophthalmological hospitals and dispensaries under the department of public hygiene.

A school for midwives at the Lithuanian University is open to all women over 20 years of age, but training is not obligatory.

LUXEMBURG

No statistical data as to the number of blind are at hand.

Trachoma, reported as practically absent except for a few important cases, is a notifiable disease according to arrangements with Germany and Belgium in International Conventions of 1874 and 1891 (2), and granular conjunctivitis cases are excluded from school during suppuration.

The Law of August 1923 calls for instruction of blind children and those having such weak vision that they cannot be educated in normal classes (3).

MALTA

Statistical information as to the number of blind is lacking.

The Report on the Prevalence of Trachoma in Various Countries (4) speaks of improvement in the situation since the intensive campaign started in 1924 by the health authorities, but according to the 1927 annual report of the Department of Health, trachoma is still very prevalent in rural parts of the islands. The disease was made reportable in 1922 and the combative campaign has included the establishment of dispensaries and clinics, nursing service, school inspection and educational propaganda. It is interesting to note that of 10,500 emigrants to Australia, Canada and the United States during the last nine years, none has been rejected on account of trachoma (5).

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(1) *Report on the Prevalence of Trachoma in Various Countries.* League of Nations C. H. 447, 448 and 605.

(2) League of Nations, C. H. 447, 448 and 605.

(3) *L'Enfance Aveugle.* P. Nisot.

(4) League of Nations, C. H. 447, 448 and 605.

(5) *Prevalence of Trachoma in Malta and the Measures adopted for its Prevention.* League of Nations, C. H., 646, March 12, 1928.

MEXICO

A total of 11,862 blind are listed in the 1910 census. The Mexican Government is attempting through the Board of Health to study the more frequent causes and to practice preventive methods through instruction in ophthalmology for medical students, courses in prenatal and obstetrical care for doctors, medical students and obstetricians, consideration of school hygiene and ophthalmological attention for children of school and pre-school age. The Government is also interesting itself in the prevention of industrial accidents and with the co-operation of industry is promoting the use of protective devices and professional care for eye injuries.

A Mexican Society for the Prevention of Blindness, organized in 1913, conducts an educational campaign throughout the country. It has received moral support from the Mexican Society of Ophthalmology and Oto-rhino-laryngology, which with free consultations and the publication of special pamphlets on various dangers to eyesight makes a most important contribution to the prevention of blindness.

Obligatory reporting of trachoma, ophthalmia neonatorum and venereal disease, recommendations as to the use of silver nitrate in babies' eyes, exclusion of immigrants suffering from granular conjunctivitis, provision of ophthalmological services and advice are other measures leading to preservation of vision in Mexico.

NEW ZEALAND

Though there is no official census, the number of blind in the Dominion is estimated at 650, the majority being totally without sight, and all with sufficient vision loss to demand aid from the Jubilee Institute for the Blind.

Trachoma, a reportable disease, is comparatively rare. Ophthalmia neonatorum, also notifiable, is becoming less usual, particularly since the revision of midwife regulations in 1925 and the requirement of midwife training.

Vision tests and health education are given under the Division of School Hygiene.

NORWAY

The 1920 census counts 2,687 blind in Norway.

At this time Herr Krag Torp stated that the majority of persons being registered for institutional care were adults, a fact attributed to a great increase in factory labour.

Silver nitrate is applied to babies' eyes in public maternity hospitals and *l'Association des Aveugles de Norvège* advocates the general use of this prophylactic.

PALESTINE

No statistics are available for Palestine other than those reported by the various hospitals and clinics. According to the 1927 Public Health Report, more than 80,000 new ophthalmic cases are handled each year, and more than 60,000 schoolchildren are under medical observation or treatment for their eyes.

Trachoma is the most serious health menace, especially in the southern part of the country, and is the greatest cause of blindness and impaired vision among schoolchildren (1). The professed object of the Infant Welfare Centre attached to Government Hospital at Haifa "to teach mothers not only how to prevent their children from dying, but how to keep them healthy and free from disease... and how to preserve their eyesight" (2) — suggests how prominent a part ophthalmological problems must play in the consideration of social welfare programmes, and is an instance of activities followed in the prevention of blindness.

The National Government, the Ophthalmic Hospital of the Order of Saint John, the Jewish Infant Welfare Centre and the Hadassah Medical Organization are outstandingly active in the operation of clinics and treatment centres throughout the country and particular attention is given to the training of clinic personnel, midwives and school nurses.

School medical inspection is organized under the Department of Health and the Hadassah Medical Organization — the latter caring for children in a large number of the Jewish schools — and public health reports speak of the anti-trachoma work continuing to make favourable progress, the proportion of children showing signs of the disease falling from 69 per cent. in 1925 to 62 per cent. in 1926 and 59.5 per cent. in 1927. Naturally a higher incidence is found in village schools than in the towns where nurses and medical supervision are available. The Hadassah organization reports a decrease among Jewish children from 40 per cent. to 11.7 per cent. since 1919, largely due to more careful work through its employment of school nurses. Among other activities of this organization is the conduct of pre-natal and post-natal clinics and child welfare centres in various localities. In course of time it is hoped that the local population will assume control of the many institutions established by this organization; meanwhile, its work is classified under the following divisions by Dr. E. M. Bluestone, Director:

1. Preventive medicine (including school hygiene, pre-natal and post-natal care, midwifery service, infant welfare, pre-school service, immigration service, anti-trachoma service, district nursing.)
2. Curative medicine.
3. Education and research.

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(1) League of Nations, C. H. 447, 448 and 605.

(2) Department of Public Health Annual Report, 1927.

Palestine appears to be well protected from smallpox by vaccination, but one native case being reported in 1927.

PHILIPPINE ISLANDS

The Report on the Prevalence of Trachoma in Various Countries says: "The increasing prevalence of trachoma (in the Philippine Islands) is a problem which requires serious attention. Moreover, it is possible that more cases may be imported from China and Japan on account of the great number of these people coming to the Islands."

Bearing out this statement, a survey in the Manilla schools shows a steady increase in trachoma incidence from 0.36 per cent. in 1913 to 4.71 per cent. in 1923.

POLAND

Census figures show 16,144 blind in Poland, but M. Nisot in *l'Enfance Aveugle* gives the estimate of 19,200 and names as the most frequent causes: ophthalmia neonatorum (gonorrhoeal), trachoma, glandular tuberculosis, syphilis, glaucoma and infectious diseases such as smallpox, scarlet fever and conjunctivitis.

"Undoubtedly trachoma is one of the most important epidemiological problems in this country, especially in its eastern provinces, when it is often the cause of serious disability and blindness" (1). The proportion of cases per 100,000 of the population was reported in 1925 as 17.6 per cent. and in 1926 as 26.5 per cent, and in studying the trend of figures from 1919 a steady increase over this eight-year period is noted. To some extent this may be explained by the fact that in 1919 trachoma was made a reportable disease, but there seems no question of its being much more prevalent since the War and a heavy importation from Russia. The Department of Public Health Service through a special conference in 1924 drew up plans for an anti-trachoma campaign to include the standardization of medical diagnosis and treatment for trachoma cases, more complete hospital and clinic service, inspection of asylums and orphanages and training courses for physicians. The Ministry of Labour and Social Welfare joined in the financial support of this programme, and is interested also, with the Ministry of the Interior, in an enforcement of industrial provisions to safeguard against death or serious injury. In connexion with this last question, by decree of June 30, 1928, the Polish Government demands on the part of factory inspectors knowledge as to hygiene and the prevention of industrial accidents.

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(1) *Trachoma in Poland,* by Mme H. Adamowitz of the Hygiene Institute, Warsaw. League of Nations, C. H. 580, March 28, 1927.

ROUMANIA

The 1899 census listing 4,967 blind seems to be the latest tabulation, but in 1906 the estimated blind were placed at 15,000.

The Report on the Prevalence of Trachoma in Various Countries (1) says: "Incomplete and inaccurate as the statistical data on Roumania are, they amply illustrate the seriousness of the trachoma problem in that country," and it would appear that this is the chief cause of blindness and vision impairment. In *La Revue Internationale du Trachome* for January 1927, Dr. Elma Puscarin reported the frequency of trachoma among other eye diseases handled at the eye clinic of the Faculty of Medicine in Jassy as 12.52 per cent., in 1919, and 49 per cent in 1923.

In 1920, *l'Asile des Aveugles de la Reine Elisabeth*, thanks to the help of Queen Marie, instituted measures for the prevention of blindness and the Queen Marie Hospital, under the auspices of the Minister of Health, was opened for treating persons with eye diseases from all parts of the country — its device being "to prevent blindness as much as possible." Ocular examinations in the schools of Bucarest were started in 1926 and State and local authorities are taking part financially and practically in the campaign, which already indicates a lowering of incidence in schools.

Notification of trachoma is not compulsory, though provision to that effect is made in the Health Law.

SCOTLAND

The number of blind registered as of April 1922 was 5,515 of whom 7.2 per cent. were blinded by industrial accidents and 5.87 per cent. from accidents in civil life (2).

A satisfactory decline in gonorrhoeal ophthalmia is noted by the Committee for the South West of Scotland appointed to administer the Blind Persons Act.

Scotland has a number of sight-saving classes distributed among several cities.

SPAIN

According to the "Report of Spanish Delegation on Blind Children" to the League of Nations (1), the total number of blind persons 15 or 20 years ago was 24,608, or 1.25 per cent. of the total population. A study was commenced in 1927 by the Ministry of the Interior, which, though incomplete, leads to an estimate of 38,000 for the country.

In the same report, Dr. Mérida names 77 per cent. of the blindness observed by him as due to preventable diseases, and it is interesting to note the following causes given by Dr. Zwiskowski for 100 blind children passing through his hands:

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(1) League of Nations, C. H. 447, 448 et 605.

(2) Great Britain Ministry of Health, Final report of Departmental Committee on Causes and Prevention of Blindness, 1922.

Ophthalmia neonatorum	55%
Infections of cornea and conjunctiva (especially scrofulous and syphilitic disease)	30%
Lesions of back of eye	3%
Congenital	3%
General disease	3%
Tumours	1%
Traumatism	5%

SWEDEN

The 1920 census gives 3,090 as the number of blind, a figure which has varied comparatively little since 1870.

Causes among 163 pupils of the Institute for the Blind may be indicative of the general situation:

Malformations	17.8%
Ophthalmia neonatorum	13.5%
Retinochoroiditis	12.3%
Sympathetic ophthalmia	12.3%
Senile cataract	9.9%
Tuberculosis	6.1%
Meningitis	5.5%
Glaucoma	5.5%
Accidents	4.9%
Unknown and other causes	12.3%

The absence of trachoma from this list is noted, and according to Dr. F. Bismark (2) the disease is rare in Sweden.

The law of June 27, 1896, provides for the creation of necessary educational establishments for blind children. As the standard definition of blind children mentions "those whose sight is too weak to permit them to partake with advantage of ordinary school instruction," this law would seem to embrace the partially sighted.

A total of 2,107 blind were counted in the 1895 census; Jean Bronne gives the number as 2,360 (3).

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(1) League of Nations, C. P. E. 144, March 19, 1928.

(2) *Report on the Prevalence of Trachoma in Various Countries*, League of Nations C. H. 447, 448 and 605.

(3) *The Problem of the Social Protection of the Blind.* Jean Bronne.

SWITZERLAND

In the 1926 report of *l'Asile des Aveugles*, Lausanne, appears the following encouraging statement : "Thanks to training of midwives, ophthalmia neonatorum cases have dropped from 13 to one or two," and sympathetic ophthalmia, formerly one of the most serious affections, shows a falling off to only two cases in five years. Trachoma, a notifiable disease, seems to be little prevalent.

L'Asile des Aveugles reaches a large number of people from the whole country through its ophthalmological service and educational work is carried on by it and by the Swiss National Accident Insurance Office, which has designed a number of protective devices for industrial workers.

The municipality of Zurich has opened a sight-saving class in which 18 children with vision less than 1/5 of normal are being educated, and plans are under way to enlarge this movement (1).

SYRIA

Figures on the number of blind are not available (2).

From a study of reports, trachoma, made notifiable in 1920, is noted as the most menacing of eye diseases, and appears widespread throughout the country. The Inspector General of Health Services reports a united anti-trachoma campaign including provision of dispensaries, home visits and travelling clinics, which "will be continued and intensified."

TURKEY

Since the War, trachoma has been a serious problem in Turkey; particularly in the eastern part of Anatolia, where in one province the percentage among the population reaches 57.8. Medical inspection of school children shows 30 per cent. trachomatous in one province.

In 1925, the Ministry of Hygiene instituted a survey by the health departments and an anti-trachoma campaign was opened under the direction of five specialists with assistants and sanitary inspectors, with appropriations from the Ministry of Hygiene.

UNION OF SOVIET SOCIALIST REPUBLICS OF RUSSIA

Dr. Boldt in a trachoma monograph (3) repeats the estimate of 400,000 blind in Russia and gives as the two principal causes smallpox and trachoma. Later estimates as to the total number are not available, but in a study published in 1927 (1) trachoma is named as the most prominent cause, the disease being worst in the Tchuvash region and the north east.

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(1) *Eine Sonderklasse für Seheschwache in Zurich*, Anna Schweizer, Pro Juventute, October 1928.

(2) League of Nations, C. H. 611, June, 20, 1927.

(3) London 1920, Hodder and Stoughton ; translated by Herbert Parsons.

In one province of the Ukraine, the incidence of eye diseases is much higher among the Bulgarian population where sanitary conditions prevail and the fat content in diet is low, than among the Ukrainians and Russians. In another province one town shows considerably higher incidence among Germans than among Russians and Ukrainians, in spite of the first group's higher standard of living (2).

The Government, both State and local, the Pan-Union Ophthalmological Congress, the People's Health Commissariat, the Red Cross, the American Relief Administration are prominent as taking part in the fight against trachoma through training centres for doctors and nurses, compulsory examinations, clinics and mobile units for rural districts. The trachoma laboratory of the Bacteriological Institute at Kharkow is conducting an etiological study of trachoma.

UNITED STATES

So far as the amount of blindness in the United States is concerned, varying estimates are found. The number is considerably higher than 52,617 as given in the 1920 census report.

Details of organized activity for the prevention of blindness in the United States are given in Appendix II.

YUGOSLAVIA

Trachoma appears to be the outstanding eye disease in this country, though no satisfactory statistics are available in regard to it or to other causes of blindness.

A report on the progress of public health in 1926 speaks of the very serious condition and tells of the campaign organized by the Government to combat trachoma through research, routine examinations in schools and factories, treatment and education (3).

Chapter VIII

INTERNATIONAL AGENCIES INTERESTED IN THE PREVENTION OF BLINDNESS

LEAGUE OF NATIONS

Child Welfare Committee. In dealing with the general problem of child welfare, this Committee of the League has given special consideration to the subject of blind children. It is instrumental in collecting reports on the situation in various countries and in influencing public opinion as to the care and treatment of the blind child. One definite step taken in prevention has been a study of the employment of children in cinematograph studios from the standpoint of the effect of such employment upon the general health and upon the eyes. Attention has also been given to the question of education for children with seriously defective vision, with stress laid on the need of sight-saving classes.

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(1) *The Problem of Trachoma in the Federation of Socialist Soviet Republics of Russia.* League of Nations, C. H. 595.

(2) *Trachoma in the Ukraine.* League of Nations, C. H. 621. August 23, 1927.

(3) League of Nations, C. H 599.

The Child Welfare Committee is not concerned with the medical aspects of prevention, which have been left to the Health Committee.

Health Committee. — The Committee has instituted a world wide study of the blind. Information asked for in the questionnaire sent to various Governments included the following items of importance in a consideration of prevention programmes:

1. Are there any accepted definitions of blindness? If so, please state them and the purpose for which the definition is used. Is the definition the same for children as for adults?
2. What is the total number of blind persons, male and female, in the country, and what is the proportion of blind persons to every 1,000 persons of the general population of the country? What definition of blindness is adopted for the purposes of these figures?
3. Is there any organized work being conducted for the prevention of blindness, and if so, of what nature and by whom conducted?

Available analyses of the number and classification of the blind were likewise asked for together with statistics concerning the causes of blindness.

The Committee has also given considerable attention to the question of trachoma and its distribution, and the many reports collected and published by the League on this subject as well as on general public health questions are of immense value.

INTERNATIONAL LABOUR OFFICE

Prevention of blindness from the standpoint of industry has been of interest to the International Labour Office, whose co-operation is particularly noted in the collection of data and in recommendations as to regulative and protective measures. A resolution adopted at the Eleventh Session of the International Labour Conference, May-June, 1928, calls particular attention to the ''Safety First'' movement and stresses the necessity of collaboration between employer and employee with a view to diminishing the number of accidents in factories. The Conference further resolved to complete its information and statistics on the safety provisions in force in the different countries.

Lighting in its relation to eye health and to the prevention of industrial accidents is dealt with in a publication of the Office under the title *l'Eclairage Industriel.*

LEAGUE OF RED CROSS SOCIETIES

The attitude of the League of Red Cross Societies towards the prevention of blindness is stated in Chapter I of this Report. It is the League's function not to carry on a technical work of this nature as part of its own programme, but rather to stimulate present efforts and promote international co-operation.

UNION INTERNATIONALE CONTRE LE PÉRIL VÉNÉRIEN

Elsewhere in this Report is brought out the significance to sight conservation of anti-venereal disease measures and social hygiene, and the Union promises full co-operation. As the result of an agreement between the Union and the League of Red Cross Societies close collaboration is established between these two bodies and the various national organizations dealing with maternal and child welfare.

ASSOCIATION INTERNATIONALE POUR LA PROTECTION DE L'ENFANCE

This Association in its consideration of child welfare naturally takes account of health conditions, and through its printed material calls attention to the prevalence of blindness in a number of countries and to the need of prevention.

INTERNATIONAL SAVE THE CHILDREN FUND
INTERNATIONAL EDUCATION BUREAU

These two agencies come also within the group of those dealing with child welfare and have an indirect interest in the preservation of eyesight.

INTERNATIONAL MIGRATION SERVICE

This organization, by nature of its work with individuals, comes in contact with problems of social upheaval due to visual defects and disease, and with complications arising from lack of uniformity among countries in handling infectious diseases.

CHAPTER IX

THE NEED AND POSSIBLE FUNCTIONS OF AN INTERNATIONAL ORGANIZATION FOR THE PREVENTION OF BLINDNESS

The foregoing chapters have described somewhat in detail the varied plans already under way to combat several of the more spectacular causes of blindness, and, in a very few instances, national efforts to consider the question as a whole. It will be observed, however, that the attack on blindness as a world-wide problem from the public health standpoint has been casual in the extreme. There is every evidence, on studying the information put before us by various authorities, of a distinct need for a clearing house of information and a central agency to assist others in the field.

Such an agency should be recognized as an authority concerning the sociological, economic and health aspects of the preventive programme — not only for laymen, but to some extent for the medical profession as well. In matters of public and private administration it should undertake to furnish complete data with regard to existing prevention of blindness activities — international, national, provincial and local. It should encourage the demand for such information as will fit into the health or social programmes which are being carried out, and should be prepared to assist in so far as financial resources and personnel will permit. It should assemble the results of research in the medical and public health fields. It should be thoroughly informed as to legislative measures in practice and ready to indicate desirable action for groups seeking to organize or to promote legislation.

An international organization for the prevention of blindness would encourage official agencies to establish and maintain preventive programmes and, at least theoretically, it should look forward to the time when society may be so organized as to no longer be in need of its services. In the field of ophthalmia neonatorum, for example, quite possibly all necessary activities, both as to practice and education, will be conducted by official health agencies within a relatively short time. Already, in those nations which are progressive in public health matters much legislation and regulation exists.

We may think of sight as being lost through the specific causes of accident and disease, and of defective sight as caused by accident, disease, eyestrain, defective illumination or poor eye hygiene, and in broad terms every human being may be considered as one whose sight must be saved. Two general responsibilities upon society are:

1. An inculcation of correct personal practices to avoid eye complications.

2. The application of relief and cure to those whose sight is already threatened through disease or accident.

In an effort to meet these responsibilities and assist in a co-ordination of activities that will lead to effective progress, it is probable that the proposed agency could be of distinct and specific service to such groups of society as are listed below.

MEDICAL AND ALLIED PROFESSIONS

The relief of those threatened with blindness or partial loss of sight lies in the hands of the medical profession, whose responsibilities vary somewhat as follows:

(1) *Ophthalmologists.* All practising ophthalmologists prevent a certain amount of blindness and avert eye catastrophes in their daily professional work ; in addition many of them contribute service in free clinics and hospital wards, and in their own offices.

(1) *General Practitioners.* In the exercise of their profession general practitioners often discover potential cases of blindness or disease which may finally result in the loss of sight. In routine examinations they frequently discover symptoms of defective vision. General practitioners and obstetricians, whether in compliance with the law or health regulation, or on their own initiative, make a valuable contribution to the prevention of blindness by the use of protective solutions in the eyes of the newborn, and also by the prompt and vigorous treatment of ophthalmia neonatorum when discovered.

(3) *Nurses.* In the field of public health, especially as home health teachers, school aids, or acting under the direction of the medical profession, nurses are engaged in the routine examination of a large number of persons and detect a large number of potential cases of blindness.

The above classification includes those professions where expert services are given in the direct prevention of blindness. There may also be added to these classes:

ENGINEERING SERVICES

Another type of professional service is found in the engineering field where, though the responsibility is somewhat more indirect, good practice will result in much sight-saving.

(1) *Architects* design buildings and provide natural and artificial light.

(2) *Illuminating Engineers* plan and supervise the installation of lighting systems.

(3) *Safety Engineers* are charged with devising, installing and maintaining proper safeguards for protection against loss of life and injury from industrial accidents.

Though it cannot be maintained that either architects or illuminating engineers are responsible for the prevention of much total blindness, nevertheless good lighting will help in the avoidance of eye-strain which might result in seriously impaired vision.

INDUSTRIAL HYGIENISTS

In planning and promoting hygienic labour conditions, industrial hygienists must give special consideration to eyesight and its preservation.

SCHOOL SYSTEMS

All persons engaged in the education of school children are directly or indirectly responsible for conserving sight, and where physicians and nurses are employed for health examinations, such obligation becomes almost professional.

Definite responsibilities of school systems may be briefly classified as follows:

(1) Provision of adequate natural and artificial lighting in order that eyestrain may be avoided.

(2) Provision of proper school equipment and well printed material, with type and paper of such quality that undue eye strain may be avoided.

(3) Provision of instruction in eye hygiene for pupils and for prospective teachers.

(4) Maintenance of some plan of inspection whereby eye defects or disease may be discovered at an early stage.

(5) Provision of a social or nursing service to assist such children to secure correction to the fullest possible extent,

(6) Establishment of sight conservation classes for children who, because of seriously defective vision, cannot be educated profitably in the regular grade.

PUBLIC HEALTH AGENCIES

Included are international, national, provincial and municipal departments of health.

These agencies are interested in various diseases which cause blindness from the public health standpoint. Attention is called in Chapter VII to their participation in sight-saving through social hygiene activities, campaigns against smallpox and other diseases affecting sight, against trachoma, and through midwife control.

Many countries now require the notification of ophthalmia neonatorum, in a number of instances supplying doctors and midwives with prophylactic outfits free of cost. Careful follow-up of reported cases in many of the largest cities brings prompt nursing and medical care to babies with sore eyes.

AGENCIES ADMINISTERING COMPENSATION ACTS

National, provincial and municipal agencies are of necessity actively interested in the establishment of legislative measures and of regulations to eliminate industrial hazards, and in assuring prompt professional care for the victims of accident.

AGENCIES ENGAGED IN WORK FOR THE BLIND

International, national, provincial, rural and municipal. It is universally true that any agency working for the welfare of the blind has some responsibility in the field of prevention. No person should be classified as being permanently blind until all means have been taken to confirm the medical finding. Frequently, also, those engaged in work for the blind extend their activities into the general field of prevention.

SOCIAL HYGIENE ASSOCIATIONS

International, national, provincial and municipal. As the aim of these associations to prevent or arrest venereal disease is realized, so will a certain and large decrease in blindness from this cause be noted.

CHILD WELFARE ASSOCIATIONS

International, national, provincial, rural and municipal. While in most instances prevention of blindness and conservation of vision must play a minor part in child welfare plans, no organization dealing directly with children can escape assuming some responsibility for educating children in eye care. Frequently activities include health programmes, when eyesight must be given special attention.

SOCIAL WELFARE AGENCIES

International, national, provincial, rural and municipal. Attempts to adjust the socially or economically unfit to a normal environment must take account of the condition of sight as a possible factor in social failure. Everyone engaged in social case work should as a matter of routine eliminate this possibility when prescribing for persons out of step with society.

The above classification of agencies directly or indirectly interested in sight preservation is not intended to be complete. Enough have been mentioned to suggest the wide distribution of responsibilities and to indicate the extensive field which is only partly covered, so far as the preservation of sight is concerned, by existing activities.

To summarize briefly, the general aims of an international organization for the prevention of blindness may be designated as follows:

1. To ascertain and classify conditions which directly or indirectly may result in blindness or impaired vision ;
2. To advocate reasonable measures leading to the elimination of such conditions ;
3. To disseminate knowledge concerning all matters relating to the care and use of the eyes.

With these aims in mind, and recognizing the limitations of present day activity, let us again enumerate desirable methods to be followed by such an organization in the effort to attain its professed object:

1. To act as a clearing house for all national or local agencies interested primarily in sight conservation.
2. To provide information to agencies indirectly concerned which may wish to include prevention of blindness as part of a larger programme.
3. To collect, evaluate and consider all public and voluntary activities for the prevention of blindness ; to summarize publications, possibly publishing a periodical which may be distributed to all agencies interested in sight ; to translate material believed to be of value into languages used throughout the world.
4. To suggest legislation and regulation.
5. To promote international, national and local organization.
6. To promote research as to the causes of blindness.

In considering the question of blindness, we can but agree with Mr. Treacher Collins when he says in *The Elimination of Eye Disease*: "I urge that international co-operation against a common foe such as disease is the most likely way to secure international peace."

ANNEXE I.

CENSUS OF BLIND POPULATION THROUGHOUT THE WORLD

Excerpt from U. S. census report of 1910
Comparison with foreign countries.

The following table shows, for the United States and for most of the foreign countries taking censuses of the blind, the blind population as reported in the latest year for which returns are at hand, together with the total population and the number of blind persons per 100.000 of the total population.

North America

Country	Year	Total population	Blind Population Total	Per 100,000 total population
Bahama Islands	1901	53,735	135	251.2
Bermuda Islands	1901	20,961	13	(1)
British Honduras	1901	37,479	59	157.4
Canada	1911	7,206,643	3,238	44.9
Danish Antilles	1911	27,086	77	284.3
Grenada	1901	63,438	68	107,2
Jamaica	1911	831,383	1,740	209.3
Mexico	1910	15,160,369	11,862	78.2
Newfoundland and Labrador	1911	242,619	287	118.3
St. Lucia	1901	49,883	122	244.6
Trinidad and Tobago	1901	273,899	512	186.9
United States:				
Continental United States	1910	91,972,266	57,272	62.3
Hawaii	1910	191,909	180	93.8
Porto Rico	1910	1,118,012	1,603	143.4

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(1) Ratio not shown by reason of the smallness of the numbers involved.

South America

Country	Year	Total population	Blind Population Total	Per 100,000 total population
Argentina (2)	1895	3,954,911	3,526	89.2
Bolivia (3)	1901	1,633,610	2,126	130.1
Chili	1907	3,249,279	2,601	80.0
Uruguay	1908	1,042,686	842	80.8

Europe

Country	Year	Total population	Blind Population Total	Per 100,000 total population
Austria	1910	28,570,800	19,816	69.4
Belgium	1910	7,416,454	3,223	43.5
Bulgaria	1905	4,035,575	5,342	132.4
Cyprus	1901	237,152	1,732	730.3
Denmark (4)	1911	2,757,076	1,452	52.7
England and Wales	1911	36,070,492	26,336	73.0
Finland	1900	2,712,562	3,229	119.0
France	1901	38,466,924	27,174	70.6
Germany	1900	56,367,178	34,334	60.9
Prussia	1910	40,165,219	20,953	52.2
Saxony	1910	4,806,661	2,260	47.0
Gibraltar	1901	27,460	33	120.2
Hungary	1910	20,886,487	18,699	89.5
Ireland	1911	4,390,219	4,312	98.2
Isle of Man and Channel Islands	1911	148,915	155	104.1
Italy	1901	32,475,253	38,160	117.5
Malta and Gozo	1901	207,890	418	201.1
Netherlands	1909	5,858,175	2,710	46.3
Norway	1910	2,357,790	2,183	92.6
Portugal (5)	1911	5,960,056	7,916	132.8
Roumania	1899	5,956,690	4,967	83.4
Russia (European) (6)	1897	102,845,117	207,368	201.6
Scotland	1911	4,760,904	3,217	69.7
Serbia	1900	2,492,882	2,419	97.0
Sweden	1900	5,136,441	3,413	66.4
Switzerland	1895-1896 (7)	2,917,754	2,107	72.2

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(2) Exclusive of uncivilized Indians.
(3) Enumerated population only.
(4) Exclusive of Faroe Islands.
(5) Includes Azores and Madeira.
(6) Including Poland, but exclusive of Finland.
(7) In the year 1888.

Asia

Country	Year	Total population	Blind Total Population	Per 100,000 total population
Ceylon	1901	3,573,419	3,747	104.9
Formosa (8)	1905	3,039,751	15,675	515.7
Hongkong	1911	438,873	225	51.3
India (9)	1911	315,156,396	443,653	141.6
Philippine Islands (10)	1903	6,987,686	15,811	226.3
Russia (Asiatic) (11)	1897	22,794,904	40,532	177.8

Africa

Egypt (12)	1907	11,189,978	148,280	1,325.1
Gambia	1901	13,456	35	(1)
Mauritius and dependencies	1901	378,195	598	158.1
St. Helena	1901	5,200	3	(1)
Seychelles Islands	1901	19,258	22	(1)
Sierra Leone	1901	76,655	78	101.8
Uganda Protectorate (13)	1911	2,462,469	7,823	317.7
Union of South Africa	1911	5,973,394	6,550	109.7
Cape of Good Hope	1911	2,564,965	3,082	120.2
Natal	1911	1,194,043	1,036	86.8
Orange Free State	1911	528,174	516	97.7
Transvaal	1911	1,686,212	1,916	113.6

Australasia

Commonwealth of Australia (14)	1911	4,455,005	3,142	70.5
New South Wales	1911	1,646,734	1,011	61.4
Queensland	1911	605,813	383	63.2
South Australia	1911	408,558	358	87.6
Tasmania	1911	191,211	146	76.4
Victoria	1911	1,315,551	1,102	83.8
Western Australia	1911	282,114	142	50.3
New Zealand (15)	1911	1,008,468	482	47.8

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(8) Chinese population.

(9) Includes 1,754,545 persons for whom no returns as to infirmities were secured. These were deducted in computing the ratio.

(10) Civilized population.

(11) Caucasus, Siberia and Central Asia.

(12) Exclusive of estimated Badawi population.

(13) Native population in administered districts.

(14) Exclusive of full-blooded aboriginals. Includes Northern Territory and Federal Capital Territory.

(15) Exclusive of Maoris and of population of annexed Pacific Islands.

The total reported blind population of all the countries in the above table is 1,193,734. The total population represented being 876,004,976, the ratio of blind in the aggregate is 136.3 per 100,000 population. The countries specified comprise about one-half of the estimated total population of the globe, and on that basis it might be estimated that the total number of blind persons in the world is about 2,390,000. Probably, however, this is an underestimate as those regions not covered by a census are in large part inhabited by uncivilized or backward races, among whom blindness is likely to be more prevalent than it is where civilization is further advanced.

ANNEXE II.

A TYPICAL CASE OF NATIONAL ACTION FOR THE PREVENTION OF BLINDNESS (1)

THE NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, INC.
HEADQUARTERS, 370 SEVENTH AVENUE, NEW YORK CITY, U. S. A.

This organization is one of the volunteer public health agencies of the United States of America and is associated through the National Health Council with such other volunteer and official health agencies as the American Red Cross, the American Public Health Association, the National Tuberculosis Association, the American Social Hygiene Association, the National Committee for Mental Hygiene, the National Organization of Public Health Nursing, State and Provincial Health Authorities of North America, the National Society for the Control of Cancer, the United States Public Health Service, and the National Home Economics Association.

The Society at the present time (January 1929) consists of about 25,000 members and contributors distributed among all of the States of the Union. Its budget for the current year, 1929, is $ 140,000 (for a detailed account of receipts and expenditures see *Preventing Blindness*, the annual report for 1929). The Society receives no financial support from any of the foundations, relying exclusively upon voluntary contributions for its current expenses.

The Society's purposes are stated in its by-laws as follows:

1. To endeavour to ascertain, through study and investigation, any causes, whether direct or indirect, which may result in blindness or impaired vision.

2. To advocate measures which will lead to the elimination of such causes.

3. To disseminate knowledge concerning all matters pertaining to the care and use of the eyes.

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(1) Statement prepared at the request of the League of Red Cross Societies by the National Society for the Prevention of Blindness, New York, U. S. A.

THE BOARD OF DIRECTORS

The governing body of the Society consists of a board of 30 directors, ten of whom are elected each year at an annual meeting at which all members are entitled to vote. No restrictions are placed on the personnel of the directorate other than that they shall be members of the Society.

At the present time the directors consist of seven business men, two social workers, three women interested in public welfare, a lawyer, an illuminating engineer, a mechanical engineer, an educator, a clergyman, a nurse and 12 physicians of whom nine are ophthalmologists, one a State Health Officer, one the General Director of the American Social Hygiene Association and one an obstetrician.

The Board of Directors meets twice or three times a year and at the first meeting after the annual meeting (usually held in November or December) elects officers and appoints an executive committee.

THE EXECUTIVE COMMITTEE

This Executive Committee which consists of eight members, including the President and Treasurer *ex-officio*, conducts the business of the Society at meetings usually held bi-monthly.

Among the duties and responsibilities of the Executive Committee are the following:

1. Selection of the executive officer (called the Managing Director).
2. Approval of nominations of staff members made by the Managing Director.
3. Approval of annual and monthly detailed budgets prepared by the Managing Director.
4. Approval of proposed publications (other than regularly issued periodicals).
5. Consideration of new activities proposed by the Managing Director.
6. Consideration and approval of detailed reports of current activities as made by the Managing Director.
7. Consideration and approval of detailed reports made to the Managing Director of receipts and expenditures.
8. Election of applicants for membership in the Society.
9. Preparation of reports of activities for the Board of Directors.

FINANCES

Upon the approval of the monthly budget by the Executive Committee, the Treasurer pays to the Managing Director funds for current expenses, The Managing Director is responsible for all expenditures and is under bond for the faithful conduct of all the financial affairs of the Society. He must keep vouchers and report on money expended to the Executive Committee. His accounts are examined in detail semi-annually by a certified public accountant.

All funds for the support of the Society, from whatever source, are paid to the Managing Director who, at the end of each week, turns them over to the Treasurer.

The Board of Directors considers all funds confided to it as a trust for which the fullest accounting must be made.

THE STAFF

The staff of the Society at the present time (February 1929) is as follows:

1. Managing Director.
2. Associate Director, specializing in educational work, particularly in connexion with sight saving-classes.
3. Medical Director, specializing in relationships with medical and public health authorities and in sanctioning medical information distributed by the Society.
4. Secretary, responsible for records of the Society; specializing in relationships with social welfare organizations, and in work with Juniors.
5. Staff associate (a registered nurse), specializing in relationships with public health nurses; in promoting the establishment of eye clinics for preschool children and demonstrating methods of examining the eyes of such children.
6. Editor, specializing in the preparation of material for publication including reports of conferences and annual reports.
7. Publicity Director, specializing in preparation of articles for periodicals and in relationships with the public press.
8. Financial Secretary, specializing in solicitation of memberships and in keeping all records of payments from this source.

In addition to the specialization mentioned above, each of the staff members on occasion represents the Society at general conferences or special meetings at which some general phase of its work may be considered.

The Society employs the usual staff of clerical and stenographic help for the economical conduct of its affairs and also, as occasion requires, junior staff assistance.

BRIEF HISTORY OF ORGANIZATION

The work of the Society began formally in 1908 as the New York State Committee for the Prevention of Blindness. Its organization was brought about upon the sudden realization by several public-spirited citizens of the number of children needlessly blind from ophthalmia neonatorum (babies' sore eyes). Demands upon the State Committee for service in all fields of sight preservation grew rapidly, not only for New York State, but also for all parts of the nation.

In 1915 the State Committee became the National Committee for the Prevention of Blindness and began work on a nation-wide scale. Upon its organization nationally it received financial help from the Russell Sage and Rockefeller Foundations. This assistance continued for several years, until receipts from members and donors were sufficient for its current needs.

In January 1928 the name was changed to the National Society for the Prevention of Blindness, Inc. because of the feeling that the name "Society" was more fitting than "Committee" for an organization consisting of approximately 25,000 members and donors, geographically widely scattered.

CO-OPERATIVE RELATIONSHIPS

From the beginning the Society has worked in close relationship with other social welfare and health agencies.

1. It is approved by the *National Information Bureau.* This agency investigates any organization seeking to secure funds from the public for philanthropic or educational work.
2. It is a member of the *National Health Council.* This is a federation of approved volunteer and official national health agencies. (See p. 69 supra).
3. It is a member of the *National Social Work Council.* This organization is a clearing house of information for a large number of national social and health agencies, such as the Y. M. C. A., Y. W. C. A., Boy Scouts, Girl Guides, National Tuberculosis Association, etc., etc. Monthly meetings are held at which executives discuss common problems.

The Society also co-operates with a number of official and non-official bodies either through a joint committee, through membership in a special committee, or special assistance. Among such agencies are:

1. *State and Provincial Health Authorities of North America.*

A standing committee on the preservation of vision was appointed by this organization in 1925. On this committee two staff members of the National Society sit as advisory members.

2. *The American Medical Association.*

(*a*) This Association has with the National Education Association a Joint Committee on Health Problems in Education. The National Society co-operates with the Joint Committee and has already published for it a large edition of "Preserving the Sight of Schoolchildren".

(*b*) The ophthalmological section of the American Medical Association has asked the National Society to act as a clearing house of information on all the social aspects of a prevention of blindness programme. It also has a special committee on this subject with which the Society co-operates.

3. *The National Education Association.*

4. *The National Organization for Public Health Nursing* with which the National Society has a joint committee which defines the common ground of work for the two organizations.

The Society has co-operated extensively with the following organizations, holding one or more joint conferences with each.

1. The American Social Hygiene Association.
2. The National Safety Council.
3. Illuminating Engineering Society of America.
4. The Eastern Association of Indian Affairs.

The Society also maintains a close degree of relationship with:

1. The United States Public Health Service.
2. The Department of the Interior:
    a) Bureau of Indian Affairs.
    b) Bureau of Education.
3. Children's Bureau of the Department of Labour.
4. The American Red Cross.
5. The American Child Health Association.
6. The American Foundation for the Blind.
7. The American Association for Organizing Family Social Work.

5. *Commissions and Associations for the Blind and for the Prevention of Blindness.*

Excellent work is being done by commissions for the blind under State control, and by volunteer organizations interested in the welfare of the blind. Many of these organizations undertake prevention as a definite part of their programmes. Volunteer organizations for the prevention of blindness exist in a number of States. With all of these the National Society has the closest co-operation, and its services are frequently called for in putting through local educational and legislative campaigns.

SERVICES RENDERED BY THE NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS

A. EYE INFECTIONS OF NEW-BORN BABES:

(*a*) Ophthalmia neonatorum (babies' sore eyes) — Assembling, compiling and publishing data concerning State laws, regulations, customs and practices relating to the prevention of blindness from babies' sore eyes and making such data available to health officials and legislative bodies. This is being done in conjunction with the Conference of State and Provincial Health Authorities of North America.

(*b*) Syphilitic Eye Infections — Broadcasting educational propaganda concerning the care and treatment of expectant mothers to prevent syphilitic eye infections of infants.

B. EYE CLINICS FOR PRE-SCHOOL CHILDREN.

Establishing experimental eye clinics to demonstrate the necessity for, and wisdom of caring for the eyes of children between infancy and school age. This is done in co-operation with State and local authorities.

C. SAVING THE EYESIGHT OF CHILDREN OF SCHOOL AGE.

(*a*) Working with a committee of the National Education Association and the American Medical Association in determining better methods for preserving the eyesight of schoolchildren.

(*b*) Assisting in the establishment of sight-saving classes and in making provisions for correcting eye defects in co-operation with local boards of education, volunteer agencies, and health services available to public and private schools.

(*c*) Organizing courses, preparing teachers for sight-saving class work. Arranging and delivering lectures on sight preservation. This is done in conjunction with teacher training schools and colleges.

D. TRACHOMA (Children and Adults).

Promoting research into the causes of and better methods for eradicating trachoma; working with the United States Public Health Service, the Indian Bureau, the Eastern Association on Indian Affairs, the New Mexico Association of Indian Affairs, and State and local health officials.

E. EYE HAZARDS IN INDUSTRY.

Working with and through industrial concerns and safety and illuminating engineers to prevent accidents and eye strain in industry by popularizing the use of safety devices, adequate lighting systems and the wearing of goggles when necessary.

F. FIELD SERVICE.

Responding to calls from all parts of the United States for aid in forming educational and legislative programmes. Representatives are sent to local communities, and through lectures, consultation, supervision and advice, State and local organizations are aided in planning their administrative work of lessening impairment of vision and preventing blindness.

G. LITERATURE AND OTHER PROPAGANDA.

(*a*) Assembling for study and loan a library of literature, photographs, lantern slides, motion pictures, exhibits, etc., on eye hygiene and preventive measures.

(*b*) Preparing special articles on prevention of blindness for publication in various medical and educational journals.

(*c*) Reprinting for distribution special articles dealing with eye hygiene which appear in various medical and lay journals. (Literature for general distribution is prepared and furnished free to workers, and, in large quantities, at cost to organizations.)

H. CORRESPONDENCE.

Replying to hundreds of letters from individuals suffering from some form of eye trouble who want advice as to where they may secure dependable information as to best methods of treatment and latest knowledge of eye hygiene.

I. PUBLICATIONS AND THEIR DISTRIBUTION.

In addition to the Annual Reports, Transactions of Conferences, handbooks and special literature prepared as need arises, the following periodicals are published:

1. The News Letter (published five times a year).
2. The Sight-Saving Class Exchange (published five times a year. For teachers as an exchange of ideas.)
3. The Junior News Letter (published four times a year. For Junior Members, to 18 years of age.)

A more detailed description of some of the services mentioned above follows :

A. EYE INFECTIONS OF NEWBORN BABES.

Inasmuch as ophthalmia neonatorum led to the first work of the Society in the United States, it may be well to describe somewhat in detail what has been accomplished in reducing blindness from this cause.

Whatever has been accomplished has been brought about through the widest distribution of knowledge concerning this disease, in the publication of hundreds of thousands of simple statements, through publicity in newspapers and periodicals, through closest co-operation with State and municipal health authorities, the medical profession, obstetricians in particular, and with public health nurses and midwives.

One sample of the way in which this disease is described for expectant mothers and, in fact, all laymen, can be given by quoting from Publication n° 1 (revised 1920) :

"OPHTHALMIA NEONATORUM — "BABIES' SORE EYES"

> "One of the most common forms of unnecessary blindness is the result of an eye disease which afflicts the baby before it is a month old and which nearly always could have been prevented by proper care and treatment at the time the baby was born. This dreadful disease is usually called 'babies' sore eyes' and is sometimes spoken of as a 'cold in the eyes.' Physicians call it ophthalmia neonatorum.
>
> "It begins with a redness of the eyes, within the first week after the baby is born, but it may come later. The lids become swollen and matter or pus is discharged from between them. If it is neglected in the beginning, it becomes much more difficult or even impossible to cure, and unless a doctor sees the case soon after the first signs of the disease show themselves and gives proper treatment at once, the eyes may be damaged so that, even if they do not become entirely blind, sight may be greatly impaired. Enough damage may be done in one day to make it impossible, even with the greatest care, to prevent total blindness.
>
> "This eye disease can nearly always be prevented. Many years ago Dr. Credé, who took care of hundreds of babies every year, made a wonderful discovery. He found that if the doctor, nurse or midwife who takes care of the baby when it is born, would put a few drops of a simple medicine in the baby's eyes as soon as it is born, this would prevent the disease in almost all cases. Ever since Dr. Credé made this discovery, doctors everywhere have been using this medicine and have proved that it will prevent even the worst form of 'babies' sore eyes.'
>
> "One of the chief reasons why it is not always used is that it may make the baby's eyes a little sore and red for a day or two, and the mother and friends think that instead of preventing sore eyes, it has caused them.

However, this form of sore eyes is never serious and requires only simple treatment, although a physician should be called. In such cases the mother often makes the mistake of thinking that the treatment was harmful and tells her friends about it, so that when their babies come they will not permit the doctor to use the medicine. They should know that while this treatment often causes simple sore eyes, which last only a few days, it prevents the dangerous sore eyes which cause blindness.

" Another reason why it is not always used, is that for a time people supposed that if a baby had sore eyes it was because the baby's parents had not lived clean lives, and had given the baby a very serious disease which might make the baby blind. Therefore, if a doctor, nurse or midwife offered to use the medicine to prevent sore eyes, parents at once felt that they were accused of having a shameful disease. To-day we know that this is not always true, for there are many cases of 'babies' sore eyes' which may be serious enough to make the baby blind, but for which the parents are in no way to blame. Unfortunately, in some of the worst cases the disease is directly due to disease of the parents. When parents know they have this disease, they should be all the more careful of the baby's eyes.

" Mothers who are anxious that their babies shall have good eyesight should not only permit the use of the drops to prevent the worst form of sore eyes, but should insist upon their use. "

In addition to general educational work in spreading knowledge as to needless blindness caused by babies' sore eyes, the Society has from the beginning sought to bring about the establishment by law and by health regulations of such practices as would tend to eliminate this disease as a cause of unnecessary blindness. The situation at the present time can best be described by summarizing statements found in a report on the prevention of blindness in new-born babes, made by the Standing Committee on Conservation of Vision of the State and provincial health authorities of North America. The National Society serves as secretariat of this Committee and, in 1926, acting for this Committee, sent three questionnaires:

1. *To the Executive Health Officers of the various States and provinces in Canada and the United States.*

Intended to bring official information regarding laws and regulations, supplying prophylactics, the preventive lessons used in certain public health literature distributed by official groups, together with such statistical information as might have been assembled by these various agencies showing the results of reporting sore eyes in babies, and the results obtained by the use of prophylactics. This questionnaire also included such information as might be given as to unfortunate results having occurred through the use of prophylactics of unusual strength.

2. *To the departments of obstetrics in the medical colleges of the same two countries.*

These questions were framed to bring information concerning the time of use of the prophylactic in relation to time of birth, the precautions taught for preliminary cleansing of the lids, the name and strength of chemicals used for instillation and the amount of solution used for each eye, the method of storage of such solution and information with reference to reason for a change in the kind and strength of prophylactic.

3. *To maternity hospitals in the United States and Canada listed in the American Medical Association Directory.*

This asks the practices and experiences of such institutions in the use of prophylactics in the eyes of the newborn, together with the series of queries as already outlined in the two questionnaires above.

As the result of Questionnaire No 1, it was determined that in 48 States and all Canadian provinces, except Quebec, New Brunswick and probably Prince Edward Island, there are laws or regulations requiring the reporting of ophthalmia neonatorum diagnosed by physicians as of probable or positive gonococcic origin; that 48 States require reporting of the inflammation of the eyes occurring within the two weeks after the birth of a baby, by the physician, without awaiting a report of the bacteriological study made. Forty-seven States require midwives to report sore eyes. Thirty-nine States require nurses or other attendants to make such reports, and 34 States by law or regulation require the same sort of report by parents.

A reporting of inflammation of the eyes of the new-born by nurses or attendants to health officers, and perhaps in a certain sense a similar report by the attending physician, presupposes some sort of follow-up by health officers, and perhaps some authority on the part of the health agency to secure medical, nursing or hospital care. In this particular, local health authorities in 28 States and six provinces have apparently sufficient or limited authority to secure medical care, in 47 States and five provinces to secure nursing care, in 34 States and seven provinces, hospital care (a few answers are incomplete), but so far as the questionnaires or literature forwarded to the committee reveal, there does not appear enough evidence of immediate follow-up of every case of ophthalmia neonatorum reported.

The practice of carrying a question regarding the use of a prophylactic on birth certificates is not universal, some 30 States making some provision as to information concerning the use of prophylactics. In 20 States provision is made for naming the prophylactic and in six for giving its strength. The Committee recommends that queries be placed on all birth certificates.

With reference to disastrous results following the use of prophylactics, beyond the reporting of slight irritations at times from use of silver solution in one per cent. strength, no untoward results are reported by health officials. Several executives have reported complaints of irritation following the use of one per cent. solution; one from the Illinois Lying-In to the State executive officer; a few in North Carolina, believed by the State officer "probably to be not well founded"; and the following by the New York State executive: "I am only able to find a report from one physician who stated he had iritis develop in one or two instances, following the use of the solution distributed by this laboratory. There were, however, apparently no serious consequences. Whether or not these reactions are to be attributed to the solution cannot be determined." Virginia reports one complaint where protection from gonorrhoeal ophthalmia was not secured.

Prophylactic solutions are being supplied to physicians in 32 States, in the territories of Hawaii and Porto Rico, and in the Provinces of British Columbia, New Brunswick, Ontario and Saskatchewan. Midwives are also supplied in 32 States, in the District of Columbia and in Hawaii, Porto Pico, British Columbia, New Brunswick, Ontario, and Saskatchewan.

In regard to statistics behind practice, the Committee states that it was unfortunate that statistical proof of the real value of prophylactics in babies' eyes at present must remain about seven years behind current practice. Until States with follow-up work may supply the figures, studies must rely largely on the ophthalmological determination of the cause of blindness when the children enter schools for the blind approximately at the age of seven years. The damage done to the cornea readily recognizable in infancy and the damage that might be recorded by State health officials in those babies unfortunately dying during infancy or the pre-school period, may be supplied only by the persons having first-hand information gathered in the follow-up.

Those State health officers who may have had some misgivings about placing ampules of silver nitrate or other prophylactic in the hands of midwives may derive a good deal of comfort from the verbal report of Dr. William R. Nicholson of Philadelphia. In this city a condition of licensure for midwives obtaining for a good many years exacts the use of silver nitrate in the eyes of every baby born in midwife service. More than 70,000 babies in midwife practice have been born in Philadelphia since this regulation has become operative, and each baby is subsequently visited by medical inspectors trained to recognize any evidence of traumatism and especially to gather facts with relation to eye infections or the protection of eyes from infection. Dr. Nicholson informed the Committee that his inspectors have never found any evidence of injury from the use of silver. On the other hand, while there are no available statistics as to the percentage of babies infected prior to beginning the use of silver, there is not that complete avoidance of infection in Philadelphia that it was hoped might be brought about by requiring the use of silver. Dr. Nicholson stated, however, that with a close follow-up, early recognition of eye infection, and utilization of facilities for securing thorough home treatment or hospital care, no baby's vision has been lost during this period.

The answers to Questionnaire No 2 sent to departments of obstetrics in medical colleges showed a variety of prophylactics used and considerable variations as to the detailed method of use. It was shown that a great many of the departments of obstetrics follow the use of a prophylactic solution with some neutralizing or diluting solution, such as normal salt or boracic acid solution — the preparation being used immediately, within a few minutes, or at intervals varying up to one hour.

In an endeavour to obtain some information as to different kinds of infections which might cause ophthalmia neonatorum, this questionnaire revealed only an approximation not always checked against hospital records. Practically all the departments of obstetrics were in agreement that it was advisable to tell the expectant mother that prophylactics are a reasonable assurance against every sort of birth infection and that the gonococcus infection would represent anywhere from 50 per cent. to 70 per cent. of the number of infections likely to develop if no prophylactic were used. Results also justify the Committee in recommending that all State and provincial health authorities prepare such strengths of prophylactic solutions as may be deemed advisable, and wherever possible supply them to all obstetricians, doctors, midwives, and nurses in a form convenient for carrying in obstetrical bags and without cost to the individual. Where desirable, physicians only may be given the privilege of determining other strengths desired or prophylactic not designated by the regulation or law.

The questionnaire to maternity hospitals, besides bringing information which was included in the report with similar questions in the other two questionnaires, produced interesting information as to the effectiveness of a prophylactic in preventing blindness. The following points were brought out:

Chicago Lying-In, one per cent. silver; one gonococus infection in 16,000 cases, two staphylococcus, and one pneumococcus in the last 3,000 cases.

Montreal Maternity Hospital using one per cent. silver reports 98 per cent. escape of inflammation, the remaining two per cent. not being gonococcus infection.

Florence Crittenton Home of Los Angeles uses one per cent. of silver and boric acid solution the following day, reporting 99 per cent. protection in four years.

Willow Maternity of Kansas City, with one and one half per cent. silver (until a few years ago two per cent.) reports 4,000 births in 20 years, with only five or six cases of ophthalmia.

Philadelphia Maternity Hospital, reports 100 per cent. protection from one per cent. silver and immediate use of saline solution.

New York Lying-In, with one per cent. silver, followed by boric acid solution, reports no bad results.

Elizabeth Magee Memorial Hospital, Pittsburgh, 99 per cent. protection with one per cent. silver and no flushing.

Cleveland Maternity Hospital reports use of silver 2.5 per cent. preceded by a four per cent. boric acid solution, a note being made that less irritation is reported from in-patients than in the out-patients service where one per cent. silver nitrate is used.

B. EXAMINATION OF THE EYES OF PRE-SCHOOL CHILDREN.

With increasing consideration given nowadays to pre-school children, the National Society realized that there must be early recognition and correction of defects in order to help fill schools with healthy children. As posture, teeth, tonsils, and the heart demand their share of attention, so do visual errors materially affect the physical and mental condition of early childhood and as far as possible these faults should and can be eliminated before school years are reached.

Rather careful studies of the eyesight of school children reveal that approximately 12 per cent. suffer from eye difficulties of one kind or another and this indicates that failure somewhere has taken place. In most cases, so far as the care of sight is concerned, the Society believes that this percentage can be lowered by examining children at an early age and correcting difficulties before they become permanent handicaps.

It was with this possibility in mind that in March, 1925, a demonstration centre was opened by the Society in one of the neighbourhood community houses in New York City. In this work the Society had the volunteer help of an ophthalmologist who carefully checked cases of children from three to six years of age, selected according to methods developed in the clinic by one of the staff members of the Society. As findings further justified expenditures, and increasing demands for additional centres came, the study was extended to children in the Brooklyn free kindergartens and also in two private kindergartens and other health centres in New York. This expansion called for an enlarged personnel and demanded the development of a simplified inspection which can be employed by nurses and lay assistants who may refer to ophthalmologists children found with abnormal eye conditions. With the co-operation, therefore, of a number of ophthalmologists, a special technique was developed, with the idea not only of following this in the studies conducted by the Society, but of stimulating its use in all places where health work with pre-school age children is being carried on. Such technique must, of course, assure accurate findings from the reading of the Snellen chart and these must be obtained by as simple a method as possible so that the child may not be fatigued or discouraged. Through a process of elimination, the Snellen E. chart was decided upon as probably the most accurate and simplest. The method as developed was secured through experience with some 300 children between the ages of three and six years. Sixteen nationalities were represented among these children of whom a number understood no English.

The equipment used consists of a Snellen symbol E chart, properly lighted, hung on a level with the child's eyes at an accurately measured 20-foot distance; neutral coloured cards for covering the eyes; an E, the size of the one at the top of the chart on a card for teaching the child to "play the game."

Without saying anything at all to the child about having his vision tested, he is invited to play a game in which the symbol E becomes a funny little animal with legs. The play leads him to indicate in a game of "Peek" just which way the legs point. The symbol, or animal, is exposed to view through a hole in a card, only one symbol at a time appearing when the test symbols approaching his limit of recognition are reached.

Full description of methods used in testing the vision of pre-school age children are furnished on request by the National Society for the Prevention of Blindness.

The work has not been conducted long enough yet to enable final figures to be given, but it has been found that some ten to 15 per cent. of children of this age should have the attention of ophthalmologists. The method has had the approval of a number of the most prominent ophthalmologists of the United States and the demand for administrations has considerably increased during the past year. During the years 1927 and 1928, agents of the Society gave approximately 200 demonstrations in about 30 American States.

C. SAVING THE EYESIGHT OF CHILDREN OF SCHOOL AGE.

The responsibilities of school systems in conserving the eyesight of schoolchildren is discussed in another part of this report. The National Society has from the beginning realized the importance of co-operating with public and private school systems throughout the nation. With this end in view it co-operated directly with the Joint Committee on Health Problems and Education of the National Education Association and the American Medical Association by assisting in the conduct of a study concerning methods already in use for examining the eyes of children in schools, and in formulating a method which could be recommended for general adoption. As the result of this study, the Society published for the Joint Committee in 1925 a large edition of a pamphlet entitled "Conserving the Eyesight of Schoolchildren: a Programme for Public Schools." Before publication this pamphlet was submitted for approval to a large number of oculists, of school administrators and health officials. It has been of great use in helping to standardize eye examinations and to provide comparable records. This pamphlet deals with the importance and extent of defective vision among schoolchildren and states that approximately 12 per cent. represents the amount of defective vision found among schoolchildren in the United States under the present methods of examination. It was also found that approximately one third of the total school population in the United States had had their eyes examined preceding the study. It was also stated that defective vision has a greater frequency in rural than in urban districts. The report strongly emphasizes the necessity of eye examinations as part of general school health examinations. Methods which can be used by teachers and school nurses in using the Snellen test (in any effort to provide a first screening where the services of a qualified specialist are not available), are described in detail. The publication also names the essentials which school official, school nurse or teacher should have of eye conditions in order to carry out the plans recommended.

In co-operation with the same Joint Committee the Society has prepared for distribution, at cost approved, Snellen letter and symbol charts.

Sight-Saving Classes. Sight-saving classes as a form of specialized education are comparatively recent movements. The National Society has published considerable material after extensive investigations and conferences held with school administrators. A first class in America was established in 1913 in Boston. The growth has been relatively slow and much time was spent in careful experimentation. They are now quite generally accepted by school administrators as being an essential part of a school system differentiated to meet varying educational needs.

From the standpoint of conservation of sight, every school system has to consider three groups of children:

1. Children with normal vision.

The responsibility of the school system for this group is to make every effort to keep the vision normal through attention to general health and eye hygiene and to the correct physical equipment of the class-room, including lighting, seating, ventilation and text-books.

2. Children with defects of vision that may be corrected or diseases of the eye that may be cured.

Here the responsibility must, of course, include benefits provided for the first group and in addition co-operation with the parents in having the necessary correction or treatment that will bring the child's vision as near to normal as possible.

3. Children with serious eye difficulties who, after proper refraction and treatment, cannot be profitably educated in the regular grade. This group includes children with serious eye diseases involving loss of vision, where treatment over an extended period must be given.

The responsibility for this group is even more complex, and presents a decided educational problem.

Experience indicates that one child in every five hundred to a thousand of the school population requires the advantages of a sight-saving class.

For all practical purposes, children with less than 20-200 vision by Snellen Chart measurement are considered educationally blind and are usually eligible for schools or classes established for the education of blind children. Between this group and the group that may be profitably educated in the regular grades are children with eye troubles of four types, which make education in regular school classes impractical or impossible:

1. Children with more than 20/200 vision, but visual acuity insufficient to enable them to read ordinary print or to see figures or letters on the blackboard.
2. Children able to read ordinary type but only at the expense of their vision or general health.
3. Children with progressive eye troubles.
4. Children with diseases of the eye that seriously affect vision.

The question at once arises as to what shall be the ophthalmological guides which shall serve for the selection of pupils to be admitted to such special classes. Certain States have adopted rather detailed specifications and rules.

In general, it is believed that the purpose of these classes will be satisfied by such selections as may be agreed upon by local ophthalmologists in consultation with school officials. Of course, such determinations should provide for the admission of the children who are classified in the four groups as given above.

In the first group, selected in part by simple acuity of vision tests and in conference with the ophthalmologist after corrections are made, will be found those children who cannot keep pace with their class-mates without an undue amount of attention from the teacher, and those who, if required to use the regular school books and appliances for the same periods of time as their class-mates, may suffer irreparable damage to their vision.

In the second group will be found those children with errors of vision not susceptible of complete correction by lenses and who need to have their close vision work minimized in the interest of their health — children with mixed astigmatism, with permanent corneal cloudiness or scars resulting from disease or accident, with cloudiness of liquid eye media, and with faults of development making permanent life handicaps.

In the third group will be found that class of children prompting the establishment of the English classes for myopes, namely, the children whose eyeballs are too long to permit proper focusing of parallel rays of light on the retina, and with walls of the globes weak, thin, or thinning. These children, with close study from common school book type, are apt to have the nearsightedness grow progressively worse because of stretching of the eyeball until eventually blindness may result. Properly organized sight-saving classes may avert serious danger until the eye change becomes more or less arrested.

In the fourth group will be found those children with acquired or hereditary disease making it imperative that special safeguards be utilized in giving them such an education as may safely be acquired without further impairment of their vision. Many in this group may require admission to the sight-saving class for portions of their school career only, or while under continuous treatment. In any event, a child in this group is more likely to be given a chance of having the disease arrested or cured if handled by those greatly concerned with preservation of vision as well as with promotion of the child's education.

It is possible for any superintendent of a school to determine roughly the number of children in his charge probably eligible for sight-saving classes by using the estimate of one in 500.

It is important that such classes should have ocular supervision under the care of private or school ophthalmologists; that careful records should be made of the eyesight of every child, and that the sight-saving class teacher should acquire a considerable knowledge of eye conditions recorded in order to give the child all advantages afforded by the class. It is not, of course, intended that the teacher should acquire detailed knowledge of ocular conditions but only enough to co-operate closely with the oculist.

So far as physical equipment of sight-saving classes is concerned, the following points are emphasized:

1. That a room of regulation size, well lighted, shall be selected for the class, and that the lighting shall be of the best possible character, both artificial and natural.

2. That the room shall be fitted with movable desks suitable to the size of the children and that suitable educational material which will not involve eye strain shall be provided.

Large type books are available for most of the essential subjects and are at present being published by the Clear Type Publishing Company, Montclair, New Jersey.

Two general methods used in conducting sight-saving classes are :

1. Co-operation. By this plan pupils take such part of their work as does not involve the use of their eyes with regular classes, and :

2. Segregation for all educational work.

The large majority of classes in the United States are organized on the first plan. As experience in the work gives greater opportunities for drawing possible conclusions, it would appear that if the sight-saving class child is to be a social asset he must be socially educated. To segregate him may emphasize his handicap by depriving him of contact with normally sighted children of his own mental age and ability.

Frequently children with seriously defective vision are found to have other physical handicaps, for example mental deficiency. In the United States a child suffering from both of such physical defects is not considered eligible for the sight-saving classes. In a few larger communities where a sufficiently large number of mentally defective children have seriously defective vision, special classes have been established.

Financial support. In a considerable number of States, State grants in aid are made to local communities for establishing and maintaining sight-saving classes. These sums vary from $250 a year for each child to a lump sum of $15,000 which is pro-rated to all cities maintaining such classes. In one State half of the teachers' salary is paid by the State, provided the amount of State aid does not exceed $1,000.

In a few States the State Educational Department provides expert supervisors of health. Reference is made to publications of the Society for further details as to methods of instruction, equipment and administration: — Publication No. 28 — *Methods of Teaching Sight-Saving Classes*; and Publication No. 30 — *Sight-Saving Classes, Their Organization and Administration.*

It may be well to summarize the activities of the United States Society in connexion with sight-saving classes:

The National Society for the Prevention of Blindness, primarily organized and maintained to conserve sight, had its attention called more than a decade ago to the pedagogical aspects of sight-saving classes particularly as applied to the small number of classes then in existence. This Society had, of course, a recognized responsibility for furnishing to school systems and to the medical profession such studies as it might make on eye conditions of pupils who would be eligible for enrolment in such classes. It was not so plain that the National Society had any responsibility on the pedagogical side, a field which, in so far as special methods are concerned, is clearly a pedagogical responsibility.

However, inasmuch as there existed no national organization primarily interested in the pedagogical aspects of the problem, and inasmuch as these are so closely bound up with the medical aspects, the Society felt that it would be justified in giving some consideration to pedagogical methods. In this field it has undertaken, among other things, the following:

1. *Preparation and publication of literature.* — It prepared and published in 1919 Bulletin Number 18, a sizable document of 108 pages, entitled "Manual for Conservation of Vision Classes."

As experience in the organization and conduct of sight-saving classes increased, demand arose for a revision of this original bulletin. It has finally been replaced by two publications, one on the "Methods of Teaching Sight-Saving Classes", and a second on "Sight-Saving Classes — Their Organization and Administration". In the preparation of the first of these two bulletins the services of a City Supervisor of Sight-Saving Classes was secured; and in the second, a State Supervisor has collaborated with an official of the National Society.

These publications are printed by the National Society for the Prevention of Blindness, and distributed free of charge to all sight-saving class teachers, supervisors, and school officials having a direct interest in sight-saving classes; a nominal price is set for copies otherwise disposed of.

2. *Co-operation with sight-saving class teachers.* — The National Society has endeavoured from the beginning of its work to help individual sight-saving class teachers and school administrators. In order that it might be prepared to give real service, the Society endeavours to keep abreast of current literature appearing in the various educational and medical journals bearing on sight-saving class work, and it solicits from local school systems descriptions of any work being carried on.

3. *Publication of periodicals.* — The *News Letter*, published five times a year by the National Society, has carried from its first number items of interest and of value to sight-saving class teachers, all of whom were placed on the mailing list to receive the publication without charge. In 1924 it was decided that the number of teachers and others especially interested in sight-saving class work was sufficiently large to justify the establishment of a special publication. As a result 21 issues of the *Sight-Saving Class Exchange* have been printed and distributed without charge. This publication strives in every possible way to be the medium of expression for the teachers and supervisors themselves, the purpose of the National Society being to help.

4. *Establishment of training centres.* — Very early in the work it was seen that a body of methods and of fundamental knowledge had developed which met with rather general agreement by the leaders in the special field, and that teachers of sight-saving classes who could have some special training and opportunities for observation and study prior to entrance upon their special work would be more likely to succeed than would teachers without this special training. For this reason the National Society for the Prevention of Blindness has encouraged the establishment of training centres for special pedagogical

work. Five such courses have been conducted by New York University, during its winter sessions, and for two of the years the National Society has assisted in providing an instructor. During one summer session at Teachers College of Columbia University, a group of teachers received training, and in order that this course might be carried on successfully, the National Society furnished some financial backing. Summer courses were conducted at Peabody College during the summer sessions of 1923, 1924 and 1925; for all of these courses the National Society provided part of the instruction. Summer school courses were held at the University of Cincinnati during the summer sessions of 1925, 1926, and 1927 and at the University of Southern California in 1927 and 1928; for these sessions the National Society provided financial guarantee that no loss would ensue to the Universities sponsoring the courses and part of the instruction was provided by the staff of the Society.

An advanced course for sight-saving class teachers with experience was given at the University of Chicago in the summer of 1928; the National Society providing part of the instruction, has proceeded on the principle that financial and teaching assistance rendered by it would be of a temporary nature only and that as soon as possible the Society would withdraw from the teacher training field when reasonably certain that the local educational institution could conduct a class without financial loss. For these training centres the National Society has endeavoured to secure pedagogical instructors from the ranks of the teachers and supervisors themselves.

5. *Special study of classes in Great Britain.* — Inasmuch as classes for conservation of vision have been conducted in Great Britain for some years, the Society felt that first-hand information would be of value to the sight-saving class teachers of America. In 1926 one of its staff was sent to Great Britain to make this study and a city and State supervisor of one of the U. S. mid-western cities was secured as collaborator in the work. The report has been distributed free of charge to all sight-saving class teachers and supervisors.

6. *Lecture tours on sight-saving.* — From time to time representatives of the National Society accept invitations to visit various parts of the country and to confer with school authorities relative to the establishment and conduct of sight-saving classes in particular cities.

7. *Conferences.* — The National Society holds conferences to which it invites supervisors of sight-saving classes and ophthalmologists having a knowledge of the work. Conferences met in New York City in 1925, 1926 and 1928, and in Chicago in 1927.

8. *Placing sight-saving class teachers.* — The National Society serves to some extent in recommending teachers to various cities establishing their

first sight-saving classes. It has not attempted to operate a placement bureau but as a consequence of its connexion with sight-saving class work, it has had the opportunity of rendering some service in this particular.

D. TRACHOMA

From the beginning of its work the Society has co-operated with federal and State Departments of Health in the campaign against trachoma. It has from time to time assisted in securing increased appropriation for the United States and State Health Services dealing with the problem of its eradication. The United States is most directly charged with the welfare of the American Indians. More recently the Society has made a considerable number of studies on the public health aspects of trachoma and has been influential in promoting several research studies which are now being carried on by both governmental and private agencies. Its present effort in this respect is to promote research in both the anatomical and biological fields in order that the exact causes of trachoma may be ascertained with the probable result of a method for its ultimate elimination.

E. EYE HAZARDS IN INDUSTRY

The Society has collected information concerning eye hazards in industrial occupations, and in 1924 published a 247-page book giving the results of its enquiries and statements of the methods now successfully used by many American employers to reduce to a minimum loss of sight by accident. In this endeavour to educate the American public as to ways in which loss of sight by these means can be accomplished, the Society from time to time holds public meetings with representatives of safety organizations, industry, State Compensation Boards, and the medical profession. Conclusions reached and the statements made have been printed and have had wide use among United States employers. For further information the reader is referred to "Eye Hazards in Industrial Occupations," published by the National Society for the Prevention of Blindness, 370 Seventh Avenue, New York City.

F. FIELD SERVICE

During the years 1927 and 1928, representatives of the Society travelled to practically every State in the Union, always upon invitation, attending various conferences, giving talks before organizations, conferring with representatives of the various agencies concerned in certain aspects of prevention of blindness, including State Boards of Health, City and County Boards of Health, State Boards of Education, City Boards of Education, safety organizations, State Industrial Commissions, State Commissions for the Blind, organizations for social work, and so forth. It is estimated that agents of the Society travelled approximately 82,348 miles and visited 35 States and 107 cities in the United States, and five provinces and seven cities in Canada. Many of these 107 cities were visited by more than one staff member.

I. PUBLICATIONS

The Society endeavours to prepare in large quantities, for free distribution or at cost, statements for the general public on sight-saving and eye hygiene. Leaflets are printed on such subjects as:

Common Causes of Blindness in Children,
Take Care of Your Eyes,
Directions for the Prevention of Blindness from Babies' Sore Eyes,
Lighting the School Room,
Eye Alphabets for Young Children,
Bright Eyes. How to Keep Them Shining,
Book Marks for Juniors,
Book Plate for Juniors.

A number of children's stories which are used for supplementary reading,

A Talk to Mothers,

A series of Junior Posters for general distribution.

The more formal publications include:

An *Annual Report* each year, summarizing the progress of the work.

Proceedings of the Annual Conference to which are invited representatives from all organizations having an interest in conserving the vision,

Conserving the Sight of Schoolchildren (Report of the Joint Health Committee on Health Problems, of the National Education Association and the American Medical Association, with the co-operation of the National Society for the Prevention of Blindness).

A Brief Survey of Myope Classes in England and Scotland,
Eye Hazards in Industrial Occupations,
Sight-Saving Classes; Their Organization and Administration,
Methods of Teaching Sight-Saving Classes,
The News Letter, published five times a year.

In addition to its own publications, the Society by permission issues reprints of articles appearing in medical, educational, safety and health magazines dealing with some phase of sight-conservation. It has, for example, reprints of articles by:

Dr. Woods Hutchinson,
Dr. Edward Jackson,
Dr. Paul D. Mossman,
Dr. Thomas B. Holloway,
Dr. B. Franklin Royer,
Dr. P. Brooke Bland,
Dr. John H. Stokes,
Dr. F. Park Lewis,
Dr. George S. Derby,

all of whom have written popular articles of general interest.

The Society has prepared and distributes at cost three films. *Saving the Sight of the Baby*, *Saving the Eyesight of the Young Child*, and *Sight-Saving Classes*. It has a very large number of lantern slides which it loans at cost of transportation to agencies wishing illustrative material for talks on sight conservation.

THE FOUNDING
of
THE INTERNATIONAL ASSOCIATION
for
THE PREVENTION OF BLINDNESS

ACCOUNT OF THE MEETING ORGANIZED BY THE LEAGUE OF RED CROSS SOCIETIES AND THE PROVISIONAL COMMITTEE FOR THE PREVENTION OF BLINDNESS

at the Hôtel d'Orange, Scheveningen (The Hague)

September 14th, 1929.

The meeting opened at 11 a.m.

Honorary President: General Major J. C. van Diehl, Second Vice-President of the Netherlands Red Cross.

Chairman of the Provisional Committee: Prof. de Lapersonne.

List of Members (See Page 111)

General van Diehl delivered the following address in French:

"May I beg to address a few words to you as delegate of the Netherlands Red Cross and as representative of the International Save the Children Fund. The philanthropic ideal which has brought so many distinguished scientists together here from all parts of the world gives much credit to those who have conceived and promoted it and who have made preparations, not without having to contend with and overcome numerous difficulties, for this international Conference. I beg to express to you, Mr. President, as well as to all the members of this meeting, the wish that, with such sponsors, your conference may have a success equal to that of the diplomatic conference which has just taken place at The Hague.

"Holland considers it an honour that you should have chosen The Hague as the seat of your meeting, and the Netherlands Red Cross is extremely happy to welcome you here and to express to you its most sincere wishes for a complete success".

Prof. de Lapersonne, Chairman of the Provisional Committee, then delivered the following address:

"On behalf of the League of Red Cross Societies, on whose initiative this meeting has been called, in the name of the Provisional Committee of International Co-ordination for the Prevention of Blindness and on behalf of the Chairman of the International Ophthalmological Congress, I wish to offer you a cordial welcome and to thank you, not only for the valuable collaboration which you are bringing us in your personal experience and devotion, but also for strengthening our hopes as regards active co-operation between the powerful associations which you represent for the purpose of creating that world federation which we are endeavouring to realize.

Everything which relates to the prevention and cure of blindness reveals a lofty humanitarian spirit. What admirable examples of devotion are to be seen every day in the work undertaken for the relief of the blind.

You are in a better position than anybody else to understand this, you who, every day, come into contact with those victims to whom you bring the light of your mind and your heart.

The vast problem of the prevention of blindness is one of absorbing interest. When confronted with the diseases or injuries to which human eyesight is exposed and which end in such a terrible misfortune as blindness, we no longer have the right to declare that nothing can be done.

Thanks to the advance of every branch of science, of medical science in particular, and to the progress made in its practical application, the field of avoidable blindness becomes wider every day. Every effort should be made to give intensive publicity to the beneficient results of these sciences and to render them available to a greater number of victims.

In certain countries, institutions for the preservation of sight have developed very considerably and have rendered invaluable service. In others, on the contrary, and generally through defective hygienic conditions, through ignorance or fatalism, or owing to the lack of initiative on the part of the authorities or private individuals, these institutions are still in the embryonic state and the number of blind is enormous.

Is it not a noble task to endeavour to co-ordinate world efforts in this campaign against blindness, to set up an international body which could instruct the least favoured peoples on the most efficacious preventive measures, to render assistance to the weak in this benevolent crusade for the preservation of sight?

The task is undoubtedly a vast one and will require many years of careful study before it can be realized. None of us can hope to live long enough to see all the results attained. But that is no reason why we should hesitate for a single moment to undertake this work. It would be sufficient if, with legitimate pride, we could succeed in laying the foundation stone of such a great organization.

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When we think for a moment of the risks to which human sight is subject and take stock of the weapons at our disposal to combat them, the vital importance of the problem of the prevention of blindness is immediately brought home to us.

When we bear in mind that, even before birth, human sight may be impaired through some constitutional or hereditary disease — by syphilis in particular — we cannot fail to realize how necessary it is to establish efficient collaboration with other Associations, those, for example, which are fighting against venereal diseases.

In past years, it was customary to see — and in some countries, I am sorry to say, we still see — numerous cases of ophthalmia neonatorum, one of the chief causes of blindness, filling homes and institutions for blind children.

The admirable preventive treatment prescribed by Crédé has rendered inestimable service. Thanks to its rigourous application in maternity hospitals, it has been possible to reduce the incidence of this disease from ten per cent. to less than one per thousand. Practised with caution and with the modifications introduced as a result of over 43 years' experience, it has successfully stood the test of time and should be recommended, if not enforced, to the exclusion of all those substitutes which give only a false sense of security. Administrative measures, the special training of doctors and midwives, and particularly definite instructions to families, the application of which would be controlled, ought to be efficacious weapons against prejudice and ignorance.

In later years, the eyes of our children must be protected against all possible causes of blindness and, in this connexion, the closest collaboration should be established with child welfare organizations. During pre-school age, it will be necessary to guard against local and general infectious diseases, more particularly the various eruptive fevers such as smallpox. In China, where the number of the permanently blind is, according to necessarily incomplete statistics, said to exceed one million, more than half this number owe their infirmity to ocular complications connected with smallpox. Is not this a further reason for giving widespread publicity to the advantages of jennerian vaccination?

The problem of eyesight in the schools has been studied in all its aspects by physicians, administrators, architects and teachers. In Germany, the work of Cohn, which dates back to 1865, of Berlin, Magnus and many others, disclosed the dangers that lie in the progression of myopia. In France, Javal and the French Commission of 1881 studied questions of lighting and the visibility of text-book type; their conclusions made it possible to introduce very substantial improvements in the hygiene of schoolchildren. We must not, however, confine ourselves to the best conditions of vision and optical correction in the hope of warding off all the dangers due to imperfect refraction, and more especially to myopia. Myopia must be regarded more and more as a disease with hereditary or acquired causes, distinctive anatomic lesions — fully described by Scarpa — whose evolution, sometimes almost stationary or benignant, or, on the contrary, malignant, may be accompanied by terrible complications ending in blindness under the influence of trauma or of systemic disturbances. If is for this reason that the study of myopia among schoolchildren is so complex.

There is a question which has been engaging the attention of educators and physicians for the last few years: the education of the semi-blind, those children whose sight is too weak to enable them to attend ordinary school classes without danger. Education of this kind necessitates separate classrooms, different methods, a specially trained staff and the guidance of the pupils in choosing an occupation or profession in which good sight is not essential. These special classes for weak-sighted children are to be found in hundreds in Germany, England and the United States. In France, notwithstanding the stirring appeal made by Professor Pierre Villey, the eminent Secretary General of the Valentin Haüy Association, whom we did our best to support, we have not yet succeeded in obtaining, even in the larger cities, the segregation of these children whose sight calls for the greatest consideration.

In this campaign against blindness in the school period of life we are assured of valuable collaborators in the teachers themselves, those teachers — men and women — who never fail to respond to our appeals and whose experience very often enables them to give us most useful advice.

Among the ocular diseases of variable incidence in different parts of the world, trachoma is a typical disease which, if it is to be satisfactorily held in check, calls for universal collaboration.

Trachoma, which is perhaps the disease whose complications lead to the greatest number of cases of more or less absolute blindness, is contagious. This is a point which must always be emphasized if the disease is to be successfully attacked. Recent research work tends to show that malnutrition, and constitutional predisposition play an important part in the development of this disease; their importance, in fact, must not be overlooked from the point of view of clinical evolution, but such factors should deter us neither from our endeavour to isolate the germ or infectious virus nor from adopting the necessary measures against the spread of the disease.

The campaign, dating back to the earliest ages, against granular conjunctivitis proves that infection is aggravated by climatic conditions, poverty, overcrowding and defective hygienic conditions. In Egypt, 95 per cent. of the native population is infected with trachoma; the situation is approximately the same in the Far East — China, Indo-China, and even Japan. And from these centres of infection, the disease has, in the course of centuries, been several times carried westwards, for example, during the Crusades and at the time of Bonaparte's expedition to Egypt. More recently, notwithstanding the progress made in hygiene, we have witnessed a definite recrudescence of trachoma, the disease having been brought by native troops from the Mediterranean or the Far East.

The organized campaign against this disease should be supplemented by scientific research; Nicolle and Cuenod have already demonstrated the experimental transmission of trachoma, while the distinguished and much regretted Noguchi came very near to solving the problem of the pathogenic virus of trachoma, without however, finding a definite solution. Important work in this connexion has also been done under the auspices of the International League against trachoma, Paris.

In certain countries where the disease is widespread, campaigns are being organized by permanent and travelling clinics for the preventive and curative treatment of trachoma. The patience and perseverance of Mac Collan, who for nearly 20 years pursued his admirable work in Egypt, is deserving of the highest praise.

Finally, mention must be made of the health measures introduced to prevent the spread or introduction of the disease: isolation, detention at the frontiers, disinfection, and compulsory notification enforced many years ago in the United States and since 1923 in France. Measures of a general character call more especially for international co-operation.

The enormous development of industrial life, particularly in the metallurgical, electrical and chemical industries, has resulted in an increase in the number of cases of blindness caused by workers' accidents or occupational diseases, in spite of improved machinery and drastic labour regulations. Considered exclusively from the financial standpoint, statistics compiled by the State of Pennsylvania show that in the space of eight years more than 40 per cent. of the compensation awarded for permanent disablement have been in respect of eye-injuries; out of a total of 15 million dollars paid out in compensation, six millions were granted for the loss of one or both eyes.

In every country of the world the Government, the Health and Labour Departments, Manufacturers' Associations and Insurance Companies should co-operate in order to ensure more adequate protection of worker's eyesight.

I will not go into the question of wounded soldiers: after 12 years we are still confronted with the nightmare of war disabled men, 3,500 of whom, in France alone, are blind. We must therefore persevere in our peacetime activities, promote friendly relations between nations and help in the process of war liquidation which has lately been solemnly proclaimed at The Hague Conference.

In our humble sphere, we shall do our best, bearing in mind the words of that distinguished English oculist Treacher Collins: "International co-operation against a common foe, such as disease, is the most likely way to secure international peace."

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If we review the results achieved in the last 40 or 50 years in the matter of prevention of blindness, we find that a considerable effort has been made in different countries. In 1882, the Society for the Prevention of Blindness, London, proposed that the International Health Congress, Geneva, should award a prize for the best paper on the causes and prevention of blindness. The paper placed first by the International Health Congress held in 1884 in this city was the work of Ernest Fuchs, then a young professor at Liège, who was shortly afterwards appointed to the Ophthalmological Clinic at Vienna. We all know the remarkable impetus which he gave to the Viennese School and the leading position to which he rose and which he still holds in contemporary ophthalmology. Oculists from all parts of the world, assembled at the International Congress, Amsterdam, have just paid him an official tribute of their esteem and admiration.

The remarkable work of Professor Fuchs, so complete and accurate in its detail and, at the same time, so full of invaluable advice, is still the best guide as regards preventive measures against blindness.

The report drawn up by the League of Red Cross Societies, which we have before us, contains a brief summary of the steps taken against blindness in the different countries. Although this is little more than a general survey of the situation which will have to be completed by a detailed and exhaustive international enquiry (the Health Section of the League of Nations is at present engaged in important investigations in this connexion), it gives a fair idea of the work already accomplished. It will be realized, however, that much still remains to be done and that an international body such as the one we are endeavouring to create would be eminently qualified to co-ordinate and thereby intensify the efforts being made.

Among the Societies which, in the last 20 years, have assumed the leadership of this demonstration of human solidarity, special mention must be made of the National Society for the Prevention of Blindness. In 1908, the New York State Committee for the prevention of blindness was instituted; in 1928, that Committee became the National Society for the Prevention of Blindness, with a membership of over 25,000 (members and patrons) and a budget which, in 1929, amounted to $140,000 derived exclusively from voluntary contributions.

Dr. Park Lewis and Mr. Lewis Carris, who represent that powerful organization at this Congress, will tell you what results have been obtained by remaining in close touch with other organizations interested in hygiene and social relief. The American Association's practical programme has for some time past included the study of the measures to be taken to ensure international co-operation.

In 1923, Mr. Park Lewis brought these intentions to the notice of my distinguished friend, the late Edmond Landolt, who discussed them with me on several occasions.

The Association approached the Rockefeller Foundation and suggested the calling of a special Congress in 1926; it had already got into touch in 1925 with the Health Section of the League of Nations and the International League against Trachoma, Paris.

As the result of discussion between the American Association and the League of Red Cross Societies, a preliminary project was laid before a meeting of experts held in Paris on March 16th, 1928. Other meetings were held in July 1928, and in May 1929; the latter was attended by Professor van der Hoeve, the distinguished Chairman of the International Ophthalmological Congress, Amsterdam, and by Dr. Marx, Secretary General of the Congress, who have been good enough to give us their advice and to facilitate the holding of to-day's meeting, arranged to take place immediatley after the Ophthalmological Congress.

It was at these preparatory meetings that the project which we are going to submit to you was drafted. We beg you to study and discuss it and to give us your valuable opinion thereon; we are convinced beforehand that your opinion will contribute very largely to the early creation of that International Association which will be called upon to occupy a leading position among organizations working in the interests of Peace and human solidarity.''

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Dr. Park Lewis *(United States)* Vice-President of the American National Society for the Prevention of Blindness recalled the fact that 20 years ago at the Congress at Naples, in the presence of his eminent colleague, Prof. Angelucci, he had observed that it was not enough only to look after the blind, but that there was a still more important task to be undertaken, namely, the prevention of blindness. He was glad to see that representatives had come from all over the world to indicate their interest and to offer their co-operation to this cause. He hoped that at the next international Ophthalmological Congress, which was to be held in Madrid, great progress would have been made in this direction.

Both the public at large and the medical profession had to play a part in this campaign and their co-operation was the only means to ensure the success of the future organization. The speaker expressed his satisfaction at seeing so many scientists gathered together from different countries. He hoped that the creation of an international organization for the prevention of blindness would be the satisfactory conclusion to the meeting.

Prof. DE LAPERSONNE, Chairman of the Provisional Committee, then requested all members wishing to speak, to do so.

Prof. FUCHS *(Austria)* expressed his best wishes for the success of the conference.

Dr. Josephus JITTA, Delegate of the Health Section of the League of Nations, entirely approved of the creation of an international organization for the prevention of blindness.

The Health Committee of the League of Nations had prepared at the request of Great Britain a report on blindness. This enquiry was now ended, and its conclusions have been summarized in a report which had been distributed to all members of the conference.

He estimated there were a certain number of points of contact between the work of the Health Committee and that of the Provisional Committee for the Prevention of Blindness, and he hoped that this parallelism, far from giving rise to any rivalry would contribute, on the contrary, to establish a closer co-operation between the new international Association and the League of Nations.

Prof. VAN DER HOEVE *(Netherlands)*, President of the XIIIth International Ophthalmological Congress, recalled the fact that there was a close relationship between this Congress and the present meeting. He had already, with Dr. Marx, thought of creating an international organization, but having learned as the result of subsequent correspondence that the American National Society for the Prevention of Blindness was already in touch with the League of Red Cross Societies on this subject, he thought it better to leave to the League the initiative of its creation.

At the preliminary meeting held in Paris, in May, at which he had been present with Dr. Marx and Prof. Lundsgaard, he had promised the co-operation and support of the International Ophthalmological Council. He was glad to be able to declare to-day that he was bringing to members of the Conference, not merely the approval of the Council, but that of the whole Congress, which approval had been solemnly ratified at the meeting of Friday afternoon.

Dr. HUMBERT, Secretary of the Provisional Committee, insisted on the fact that the future association would deal exclusively with the prevention of blindness; it would nevertheless act in close co-operation with organizations engaged solely in welfare work for the blind. He took this opportunity of addressing his thanks to Prof. van der Hoeve and his Dutch colleagues for the whole-hearted support which they had given to the preliminary work of the meeting.

Mlle FERRIERE *(Switzerland)*, in the name of the International Emigration Service explained that an international organization like that under consideration would be of great use to the emigration authorities.

As regards trachoma particularly, the greatest difficulties are met with in some countries. In Syria, for instance, where 90 per cent. of the population are afflicted with trachoma, it is not very difficult to obtain a medical certificate, but the emigrants who arrive at Marseilles with such a certificate find, on debarkation, that their disease is diagnosed and they are compelled to return to their native country, this being a great calamity to them. An association which would untertake to organize, among other things, on an international basis a campaign against trachoma would facilitate to a very great extent the task of the emigration authorities. The International Emigration Service will be delighted to hear of the foundation of an international Association for the Prevention of Blindness.

Dr. CAVAILLON *(France)*, Secretary General of the International Union against Venereal Disease, declared that the Union entirely supported the meeting in its work against venereal disease.

It was possible, thanks to comparatively simple prophylactic measures, to prevent a considerable number of cases of blindness. The speaker thought that a close co-operation might eventually take place between the two organizations as had been indicated in the very noteworthy report published by the League of Red Cross Societies. He expressed the opinion that an international Association for the Prevention of Blindness would be of considerable help to the International Union against Venereal Disease.

Mr. Gordon BERRY, representative of the Near East Relief Association and the Golden Rule Foundation, recalled the fact that of 25,000 children looked after by the International Near East Relief Association, 18,000 were trachomatous. An international organization for the prevention of blindness would, therefore, play an important rôle in Oriental countries. In the name of the association he represented, he approved entirely of an international association for the prevention of blindness.

The CHAIRMAN of the Provisional Committee then read the following proposed resolution:

After two preliminary meetings held in 1928 and 1929 by a provisional committee studying the possibilities of international co-operation for the prevention of blindness, and after consideration by this Committee and other interested persons, of the report published by the League of Red Cross Societies, the meeting composed of the Provisional Committee and other persons invited by the Committee at Scheveningen, September 14th, 1929, recognizes the utility of constituting a permanent organization. This meeting, placed like the Provisional Committee under the chairmanship of Prof. de Lapersonne, Paris, recommends the formation of an International Association for the Prevention of Blindness.

This resolution was unanimously approved.

AFTERNOON MEETING

The meeting opened at 4 p.m. at the Hôtel d'Orange, under the chairmanship of Prof. de Lapersonne.

The CHAIRMAN proposed to read to the Assembly the draft of the Statutes of the International Association for the Prevention of Blindness. He begged all members to make any suggestions which they thought necessary. After a discussion in which the following took part, Prof. Pascheff *(Bulgaria)*; Dr. Humbert *(League of Red Cross Societies)*; Dr. Marx *(Holland)*; Dr Park Lewis *(United States)*; Prof. de Lapersonne, Dr. Cavaillon *(International Union against Venereal Disease)*; Dr. Pundel *(Luxemburg)*; Prof. Angelucci *(Italy)*; Prof. Avizonis *(Lithuania)*; Prof. van der Hoeve *(Holland)*; Dr. Schraenen *(Belgium)*; Prof. Fuchs *(Austria)*; Mr. Carris *(United States)* — and which resulted in a number of modifications of the Articles III, IV, X, XI and XVI — the following final text of the Statutes was definitely adopted.

STATUTES OF THE INTERNATIONAL ASSOCIATION FOR THE PREVENTION OF BLINDNESS

ARTICLE I

An Association is constituted under the name of "International Association for the Prevention of Blindness".

ARTICLE II

The objects of the Association are:

(*a*) To study through international investigations the causes, direct and indirect, which may result in blindness or impaired vision.
(*b*) To encourage and promote measures calculated to eliminate such causes.
(*c*) To disseminate knowledge on all matters pertaining to the care and use of the eyes.

ARTICLE III

The members of the Association are:

(*a*) *Founder members*: being the Councillors attending the first meeting of the Governing Body of the Association or having agreed to the present articles before June 30th, 1930.
(*b*) *Other governing members* (Councillors): other prominent persons or representatives of organizations interested in the prevention of blindness, invited by the Executive Committee, as hereafter provided for, after consultation with competent agencies in the country to be represented.
(*c*) *Supporting members* who, having provided a voluntary contribution to the Association, are invited by the Governing Body to accept membership in the Association.
(*d*) *Honorary members* who shall be selected by the Governing Body by reason of distinguished service in the prevention of blindness.

A General Assembly of all members shall be convoked by the Chairman at least every second year.

ARTICLE IV

The Association is directed by a Governing Body composed of:

(*a*) The Founder members.

(*b*) Other councillors.

Delegates belonging to these two categories must not exceed five representatives for each nation.

(c) Representatives from international organizations interested in the prevention of blindness, such representatives to be appointed by the international organization itself upon the invitation of the Executive Committee.

At meetings of the Governing Body all members present from any one country or from any one international organization shall be considered as constituting a delegation, and each delegation shall have a single vote.

In inviting new members to join the Governing Body, the Executive Committee shall take into account the desirability of securing, in addition to ophthalmologists, extensive representation of the Red Cross, of medical, nursing and educational groups, of industry, public health, industrial hygiene, social hygiene, child welfare and social welfare (*).

The Executive Committee shall have power to fill any vacancies occurring from death or resignation in membership of the Governing Body.

ARTICLE V

The functions of the Governing Body and of its members are:

A. *Nationally:*

To co-operate actively with the existing society or centre for the prevention of blindness in their own countries or endeavour to promote the creation of such a centre or society where it does not already exist. The societies or centres existing or to be created, while remaining in touch with the existing organizations for the care and welfare of the blind, shall have the prevention of blindness, as outlined in the report published in 1929 by the League of Red Cross Societies, as their specific aim. These societies shall co-operate with public health authorities against venereal disease, with child welfare organizations, educators, doctors, nurses, representatives of industries, etc.

B. *Internationally:*

The Governing Body shall direct the activities of the permanent Secretariat of the "International Association for the Prevention of Blindness".

It shall vote the budget at each annual meeting on proposals presented by the Executive Committee.

ARTICLE VI

The resources of the Association consist of voluntary contributions from individuals, and of international or national Associations.

The rate of contributions from each country shall be left to the efforts of each Association, and, whenever possible, each national agency interested in the Prevention of Blindness shall act as the representative of the International Association in securing funds from that country. If that is impossible, and with the concurrence of the representatives of the nation concerned, the International Association shall be free to solicit contributions within the country itself.

ARTICLE VII

The Governing Body shall be convoked once a year and the agenda be sent to all members three months in advance by the chairman of the Association. A special meeting may be called by the chairman on his own initiative or at the request of the Executive Committee.

(*) For the study of scientific questions, see Art. VIII.

ARTICLE VIII

The Governing Body may form, from its own members, medical or non-medical technical sub-Committees, to prepare and present technical advice, upon which the Association may act.

For the study of all scientific questions, the majority of the sub-Committees must be composed of ophthalmologists.

ARTICLE IX

On proposal of the Governing Body, the General Assembly may select an honorary chairman and honorary vice-chairman.

ARTICLE X

For the general supervision of the work of the Association in the intervals between annual meetings, the Governing Body, after having elected one chairman, and one vice chairman, shall nominate an Executive Committee composed of the chairman, vice-chairman and at least five members chosen from different nationalities and able to meet at regular intervals. The Governing Body shall further appoint a Secretary (*) and an Honorary Treasurer of the Association. The Secretary and the Honorary Treasurer are *ex officio* members of the Executive Committee. The Executive Committee is to be convoked by the Chairman. Four shall constitute a quorum of the Executive Committee. The President casts the deciding vote.

The Executive Committee shall have all the administrative and financial powers of the Governing Body whose authority is transferred to it when not in session. An annual report, including a detailed account of income and expenditure, shall be published yearly by the Executive Committee and submitted to each meeting of the Governing Body.

ARTICLE XI

The Chairman, the Vice-Chairman, the members of the Executive Committee and officers shall be elected or re-elected each year at the annual meeting.

ARTICLE XII

A permanent Secretariat shall be established. Its organization and work shall be directed by the Secretary General, subject to instructions by the Chairman and decisions of the Governing Body.

ARTICLE XIII

This Secretariat shall:

(*a*) Act as a clearing house for all national or local agencies interested primarily in sight conservation.

(*b*) Provide information to agencies indirectly concerned which may wish to include prevention of blindness as part of a larger programme.

(*c*) Collect, evaluate and consider information concerning all public and voluntary activities for the prevention of blindness; summarize publications, possibly publishing a periodical which may be distributed to all agencies interested in sight saving; issue translations in current languages of material believed to be of value.

(*d*) Suggest legislation and regulation.

(*e*) Promote international, national and local organization, dealing with the preservation of sight.

(*f*) Promote research as to the causes of blindness.

(*g*) Undertake all necessary steps to provide resources for the Association.

(*) The Secretary General should devote his full time to the realization of the aims of the Association. For the first two years, an interim situation might be created, until sufficient resources can be found for the full development of the Secretariat.

ARTICLE XIV

The headquarters of the Association shall be for the present located in Paris.

ARTICLE XV

Any modifications of the by-laws shall be made by two thirds' majority of the Governing Body at any annual or special meeting of the Governing Body, the written vote being permitted. Notice of the proposed change should be sent in writing to the Chairman not less than three months before the annual meeting. The ordinary decisions of the Committee are to be taken by majority vote.

TRANSITORY PROVISION

For the purpose of putting these by-laws into effect, the meeting convened by the Provisional Committee for Prevention of Blindness, at Scheveningen, on the 14th September, 1929, the membership of which appears in appendix A (1) shall be considered as the first annual meeting of the Governing Body, and shall vote the statutes, select the Chairman, Vice-Chairman, members of the Executive Committee, Secretary and Treasurer and also take such other action as it may deem necessary.

Dr. **HUMBERT** declared that he had been asked, after consultation with various members of the Assembly, to propose the following names for the Executive Committee:

President: Prof. de Lapersonne *(France)*.
Vice-President: Dr. Park Lewis *(United States)*.
Prof. von Axenfeld *(Germany)*.
Dr. B. Cridland *(Great Britain)*.
Prof. A. Trantas *(Greece)*.
Prof. E. von Grosz *(Hungary)*.
Prof. Maggiore *(Italy)*.
Dr. Shinobu Ishiwara *(Japan)*.
Prof. J. van der Hœve *(Netherlands)*.
Prof. J. Szymanski *(Poland)*.
Prof. Marquez *(Spain)*.
Dr. Roffo *(Argentine)*.
Dr. Julian Villarreal *(Mexico)*.

This proposal, as well as the list of members of the Executive Committee, was unanimously adopted.

Mr. Lewis **CARRIS** *(United States)*, proposed that Dr. Humbert should be nominated to the post of Secretary General of the Association. This proposal was also unanimously adopted.

Dr. **HUMBERT** reminded the Assembly that he would not be able to devote his full time to the work of the Committee; however, he was authorized to state that the League of Red Cross Societies was disposed to grant to the new International Association its support and sympathy as it had previously done for the Provisional Committee.

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(1) See page 111.

Prof. DE LAPERSONNE proposed the following names as the first Honorary Members of the International Association for the Prevention of Blindness:

Prof. Fuchs *(Vienna)*.
Major General van Diehl, *(Second Vice-President of the Netherlands Red Cross)*.
Prof. Angelucci *(Italy)*.
Prof. von Axenfeld *(Germany)*.

Prof. ANGELUCCI expressed his deep appreciation to the Assembly for the honour which had been conferred upon him.

Dr. HUMBERT proposed that the new Governing Body and its founder members should be composed of the Councillors who had been invited by the Executive Committee in virtue of Article 3 of the Statutes.

This was unanimously adopted.

The PRESIDENT asked whether suggestions might be made for the nomination of a Treasurer.

Dr. HUMBERT thought that M. Demachy, Treasurer General of the League of Red Cross Societies, might accept this post if it was offered to him.

The election of M. Demachy as Treasurer was carried unanimously.

Prof. DE LAPERSONNE declared that he would consecrate all his attention to the work of the International Association.

Prof. VAN DER HOEVE thanked Prof. de Lapersonne and Dr. Humbert for the share they had taken in the work preliminary to this meeting. Personally he preferred to see Dr. Humbert give up a part of his time to the direction of the Secretariat rather than any other person who might give his whole time to this post.

Prof. DE LAPERSONNE announced that he had received a number of resolutions from various members of the Assembly which he proceeded to read:

RESOLUTION I

In view of the fact that the public at large does not fully realize the possibilities of preventing a great proportion of the cases of blindness, the first Meeting of the International Association for the Prevention of Blindness resolves that the Executive Committee of the Association should formulate a general appeal to be circulated in all countries of the world and signed by all members of the Executive Committee.

RESOLUTION II

The International Association for the Prevention of Blindness resolves that the popular report on the Prevention of Blindness published by the League of Red Cross Societies, including an account of the present meeting, constitute valuable propaganda material, and further, resolves that it should be circulated as widely as possible, together with the Statutes of the International Association and the world appeal mentioned in the first resolution.

RESOLUTION III

The International Association for the Prevention of Blindness expresses its gratitude for the extremely valuable work undertaken by the League of Red Cross Societies in co-operation with the American Society for the Prevention of Blindness preliminary to the creation of an International Association for the Prevention of Blindness. It further resolves to express to the International Ophthalmological Council and to the Committee of the XIIIth International Ophthalmological Congress, its deepest gratitude for the invaluable help they have extended to the Provisional Committee.

RESOLUTION IV

The International Association for the Prevention of Blindness expresses to the Health Section of the League of Nations its most sincere gratitude and admiration for the results obtained from its enquiries into the causes of blindness, which have afforded a material basis for the work of the Association.

All these resolutions were unanimously adopted.

Prof. DE LAPERSONNE declared that the first meeting of the Governing Body of the International Association for the Prevention of Blindness was adjourned.

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After the morning session the Members of the Provisional Committee were asked to lunch by Senator and Madame van den Bergh.

In the afternoon all the members of the newly created International Association for the Prevention of Blindness were received at the Red Cross Headquarters by H. R. H. Prince Henry of the Netherlands, President of the Red Cross.

LIST OF DELEGATES OF INTERNATIONAL AND NATIONAL ASSOCIATIONS

League of Nations.

Dr. Josephus Jitta, Director of the Netherlands Government Health Services; Member of the Health Section of the League of Nations.

Dr. Lutrario, Member of the International Public Health Office; Member of the Health Section of the League of Nations.

Dr. Pantaleoni (observer), Member of the Health Section of the League of Nations.

League of Red Cross Societies.

Dr. F. Humbert, Director of the Health Division of the League of Red Cross Societies.

Dr. Alix Churchill, Member of the Health Division of the League of Red Cross Societies.

International Save the Children Fund.

Major-General van Diehl, Second Vice-President of the Netherlands Red Cross.

Mlle Suzanne Ferrière.

International Near East Relief Association and Golden Rule Foundation.

Mr. Gordon Berry, Secretary General, International Near East Relief Association.

International Ophthalmological Council.

Professor J. van der Hoeve, President of the XIIIth International Ophthalmological Congress.

Professor K. K. K. Lündsgaard.

Dr. E. Marx, Secretary.

Professor Axenfeld.

Professor M. Marquez.

Dr. Walter R. Parker.

International Union against Venereal Disease.

Dr. Cavaillon, Secretary General of the International Union against Venereal Disease; Chief Medical Officer of the Central Service for the Prevention of Venereal Disease, Health Ministry, France.

International Migration Service.

Mlle Ferrière.

National American Association for the Prevention of Blindness.

Dr. Park Lewis, Vice-President.
Dr. Conrad Berens.
Mr. Lewis H. Carris, Director.

French National League against Venereal Disease.

Dr. Cavaillon.

French Society for Sanitary and Moral Prophylaxis.

Dr. Cavaillon.

Belgian National League against Venereal Disease.

Dr. W. Schraenen, Secretary General.
Dr. Léon Coppez.

Palestine Ophthalmological Society.

Dr. A. Feijenbaum.

Swiss Ophthalmological Society.

Dr. Charles Kenel, President.
Dr. André Patry.

National Social Hygiene Office of the French Ministry of Health.

Mr. L. Viborel.

Japanese Ophthalmological Society.

Dr. S. Miyashita.

LIST OF DELEGATES OF NATIONAL RED CROSS SOCIETIES

AUSTRIA. — Professor Ernest FUCHS, Representing the Austrian Red Cross; Member of the Provisional Committee for the Prevention of Blindness.
BELGIUM. — Professor VAN DUYSE, Representing the Belgian Red Cross.
GERMANY. — Professor AXENFELD, Representing the German Red Cross; Member of the Provisional Committee for the Prevention of Blindness.
JAPAN. — Professor ISHIWARA, Representing the Japanese Red Cross.
LITHUANIA. — Professor Pierre AVIZONIS, Representing the Lithuanian Red Cross.
LUXEMBURG. — Dr. Léon PUNDEL, Representing the Luxemburg Red Cross.
NETHERLANDS. — Major General VAN DIEHL, Honorary President of the Assembly; Second Vice-President of the Netherlands Red Cross.
POLAND. — Professor J. SZYMANSKI, Marshal of the Senate; representing the Polish Red Cross.
SPAIN. — Professor Manuel MARQUEZ, Member of the Provisional Committee, Representing the Spanish Red Cross.

LIST OF MEMBERS

ARGENTINE. — Dr. I. Lijo Pavia. — *Argentine Medical Association.*
AUSTRIA. — Professor Ernest Fuchs, Member of the Provisional Committee. — *Austrian Red Cross.*
Professor V. Hanke. — *Public Health Ministry.*
Professor Meller. — *University Ophthalmological Institute.*
BELGIUM. — Dr. Léon Coppez. — *Belgian National League against Venereal Disease.*
Professor van Duyse. — *Belgian Red Cross.*
Mr. Schraenen. — *Secretary General of the Belgian National League against Venereal Disease.*
BULGARIA. — Professor C. Pascheff. — *Bulgarian Government.*
CHILI. — Dr. Santiago Barrenechea. — *University Ophthalmological Institute.*
CHINA. — Mr. P. Chen. — *Medical Faculty, Sun Yat Sen University, Canton.*
CZECHOSLOVAKIA. — Professor Roman Kadlicky.
DENMARK. — Professor K. K. K. Lundsgaard, Member of the Provisional Committee. — *International Ophthalmological Council.*
FRANCE. — Dr. Cavaillon. — *Secretary General of the International Union against Venereal Disease.*
Professor de Lapersonne. — *Chairman of the Provisional Committee for the Prevention of Blindness.*
Dr. Toulant. — *Algerian Government.*
Mr. Viborel. — *National Social Hygiene Office of the French Ministry of Health.*
GERMANY. — Professor Axenfeld, Member of the Provisional Committee. — *German Red Cross.*
Professor Richard Cords.
Dr. Gustav Erlanger.
Dr. Gutzeit.
Dr. Richard Hessberg. — *Essen.*
Mme Maria Polak-Swaab. — *Representing the O. S. E. Society.*
Dr. Alfred Rosenberg. — *Berlin.*
GREAT BRITAIN. — Dr. Churchill. — *League of Red Cross Societies.*
Mr. J. Gray Clegg. — *Manchester.*
Mrs. E. Gray Clegg. — *Manchester.*
Mr. Leslie Paton.
Col. N. Robert E. Wright. — *Government of India.*
GREECE. — Dr. A. Trantas, Member of the Provisional Committee.
HUNGARY. — Dr. Emile de Grosz. — *Official delegate of the Royal Hungarian Government.*
ITALY. — Professor Angelucci. — *University of Naples.*
Dr. A. Lutrario. — *League of Nations.*
Professor Maggiore. — *University of Sassari.*
Dr. M. Pantaleoni. — *League of Nations (observer).*
Professor V. Rossi. — *Ophthalmological Clinic, Naples.*
JAPAN. — Dr. Miyashita. — *Japanese Ophthalmological Society.*
Dr. Nakashima. — *Japanese Government (official delegate).*
Dr. Shinobu Ishiwara. — *Japanese Red Cross delegate.*
LITHUANIA. — Professor P. Avizonis. — *Lithuanian Red Cross.*
LUXEMBURG. — Dr. Léon Pundel. — *Luxemburg Red Cross.*

NETHERLANDS. — Mr. A. H. Belzer. — *Director of the Institute for the Blind, Amsterdam.*
Major General van Diehl, Honorary President. — *Second Vice-President of the Netherlands Red Cross.*
Professor J. van der Hoeve, Member of the Provisional Committee. — *President of the XIIIth International Ophthalmological Congress.*
Dr. J. Jitta. — *Director of the Netherlands Government Health Services.*
Mr. P. Loeb van Zuilenberg.
Dr. Marx. — *Secretary of the XIIIth International Ophthalmological Congress.*
Mr. F. Wibaut.
NEW ZEALAND. — Dr. J. H. Beaumont. — *New Zealand Government.*
PALESTINE. — Mr. A. Feigenbaum. — *Palestine Ophthalmological Society.*
POLAND. — Dr. Charles Karnitski.
Mr. Jules Szymanski. — *Marshal of the Senate ; Head of the Polish Government Delegation.*
Dr. M. Zachert. — *Polish Government.*
ROUMANIA. — Dr. Nicolas Blatt.
Dr. F. Hamburg.
RUSSIA. — Professor M. Awerbach. — *Public Health Service Commissioner.*
SPAIN. — Professor Manuel Marquez, Member of the Provisional Committee. — *Spanish Red Cross.*
Dr. Merida Nicolich. — *Director of the Institute for the Blind at Malaga.*
Professor M. Soria. — *Spanish Government.*
SWITZERLAND. — Mlle Suzanne Ferrière. — *International Migrants' Service.*
Dr. F. Humbert. — *League of Red Cross Societies.*
Dr. Charles Kenel, Member of the Provisional Committee. — *Swiss Government ; President of the Swiss Ophthalmological Society.*
Dr. André Patry. — *Swiss Ophthalmological Society.*
UNITED STATES. — Dr. Conrad Berens. — *National Society for the Prevention of Blindness.*
Mr. Gordon L. Berry, Member of the Provisional Committee. — *National Society for the Prevention of Blindness.*
Mr. Lewis H. Carris, Member of the Provisional Committee. — *National Society for the Prevention of Blindness.*
Dr. Park Lewis, Member of the Provisional Committee. — *National Society for the Prevention of Blindness.*
Dr. M. R. Parker. — *International Ophthalmological Council.*
Dr. George F. Suker.
Dr. Olga Sitcheveska.
Dr. Charles Weiss. — *Washington University School of Medicine.*
Dr. Wm. H. Wilder. — *Illinois Society for the Prevention of Blindness.*
URUGUAY. — Dr. Domingo Chiazzaro. — *Montevideo Faculty of Medicine.*
YUGOSLAVIA. — Dr. V. Luttich-Mathovich. — *Zagreb.*

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